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Map of Western Europe

Home to the Holy Land

With 41 Illustrations and Map
31 in Natural Colors

MAYNARD OWEN WILLIAMS

Mid-Century Holland Builds Her Future

With 33 Illustrations and Map
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Home to the Holy Land

By MAYNARD OWEN WILLIAMS

THIS is a simple traveler's tale of one who, coming home to the Holy Land, found friendship there at Eastertime. Sitting below the hallowed walls of Jerusalem, I watched thousands of Christians, bearing banners and waving palms, going up to the Holy City.*

A few rods away was a no man's land, outlined by barbed wire and bombed-out homes—grim reminders of the Palestine war. While Christians celebrated 20 centuries of Easters, an infant Israel danced in the streets to celebrate its second anniversary.

The places most significant and venerated in the life of Jesus Christ are now held by two new Middle East States, the Hashemite Kingdom of the Jordan and Israel (map, page 710).

Bethlehem, where the drama of the New Testament begins with the birth of Christ, and that part of Jerusalem where the last chapters end with His crucifixion are both in the hands of Arab Jordan. Nazareth, where Jesus spent His childhood and grew to manhood, is in Israel, as is Galilee, where He performed His many miracles.

Two Semitic nations, handcuffed by an uneasy armistice, guard sites revered by the followers of three great faiths (page 712).

Harder Work for a Timeworn Land

What was Palestine is slowly but steadily recovering from the Arab-Jewish war. Bright spots dot the desert. But to attain a higher standard of living for more people, Arab and Jew must make fields grow more grain, cows produce more milk, hens more eggs, sheep more wool and meat, orchards more fruit, an agricultural land more industries, and industry more markets. A timeworn land must

work harder under the same sun and rain.

How can this be done, with more than 700,000 Arabs displaced by the war and huddled in refugee camps, in tents, and in caves? How can it be done, with a half-million Zionist immigrants, lured by the magic name of Israel, seeking a new and better life?

This remains a huge dark puzzle for a land rich in puzzles. Probably not for decades will anyone know the solution.†

The glorious paths that Christ trod remain, though marred through the centuries by tramping feet and pounding hoofs of hostile armies. Only two years ago His footsteps were again obscured by the tread of tank tracks and the furrows of jeep tires. But for hundreds of years Christian pilgrims have followed His course at Eastertime to commemorate His entry into the city of Jerusalem.

So at Christmastide they flock to the dimly lit Bethlehem grotto where He was born.

A Boom Town in the Desert

These days it is a long road to Jerusalem. Steamers which serve Alexandria, Egypt, and Beirut, the booming capital of Lebanon, bypass Israel's ports of Jaffa and Haifa. Last spring, those travelers entering through Jewish ports could not cross into the Jordan-held Old City of Jerusalem.

I docked in Beirut and proceeded to the bustling Jordan capital of Amman (pages

* See "Pageant of Jerusalem," by Maj. Edward Keith-Roach, NATIONAL GEOGRAPHIC MAGAZINE, December, 1927.

† See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Palestine Today," by Francis Chase, Jr., October, 1946; "American Fighters Visit Bible Lands," by Maynard Owen Williams, March, 1946; "Change Comes to Bible Lands," by Frederick Simpich, December, 1948.



Herbert R. Bennefeld

"They're Getting Bigger!" Israeli Orphans Appraise Poultry Dividends

Poultry farming is a science with the Jews, who boast that their hand-fed hens outproduce native scavengers four to one. Despite a fine laying record, the market goes unsatisfied. These Leghorns belong to a children's village in Ra'anana, north of Tel Aviv (page 731).

713, 739).^{*} Along with the air-conditioned communities built overnight in the oil fields of Arabia, 'Amman is a fast growing city. Five years ago it had 60,000 residents. Today it boasts more than 150,000 and in another five years hopes to attain the half-million mark.

Mud-walled Village to Modern City

To one who knew it 20 years ago as a mud-walled village, with wooden-wheeled oxcarts coursing through its narrow streets, modern 'Amman is a great surprise. On the heights fine homes and excellent schools have arisen.

New shops, offices, and apartments are going up all over the city. The stonemason's tireless hammer dins throughout the day. In spacious new stores, some owned by refugees from Haifa and Jaffa, one can buy shirts from Troy, toffee from Scotland, and corn flakes from Battle Creek, Michigan.

Against this modern backdrop strolls the ever-present Biblical shepherd in flowing robe and goat-hair crown, leading his sheep to market (page 716).

To Christians, these desert men who come to town with their flocks are the modern embodiment of the Good Shepherd. Without them, millions of acres of semibarren land would be waste.

Where rainfall is less than eight inches a year, pastoral life persists. The shepherd, for a thousand years, has proved that he, at least, can live off the land.

In the countryside I saw tractors displacing plowing camels and trucks speeding along the splendid new highways. In sharp contrast, a bus driver honked to clear the road of a slow-moving caravan.

From flourishing 'Amman I rode down to

^{*} See "Arab Land Beyond the Jordan," 18 ills. in color, NATIONAL GEOGRAPHIC MAGAZINE, December, 1947.



National Geographic Photographer Margaret Owen Williams

Mother Clamps a Gentle Stranglehold on Two Objectors Taking Typhoid Shots

Trips to the Red Cross tent are not popular among Arab children in 'Ain es Sultan refugee camp near Jericho (pages 711, 727). This woman drags her offspring willy-nilly. Sister cries, "Ouch!" Brother, who's next, remains trapped in a female vise. Typhus and diphtheria injections also are given.

HOLY LAND



the River Jordan * (which ceased being a frontier when Jordan annexed Arab Palestine in April this year), crossed over, and rolled into Jericho, five miles farther on.

Again, as when Mark Antony gave it to Cleopatra, Jericho is a winter resort. But last winter the town was covered with four inches of snow, the severest winter in 264 years. One of the lowest towns on the earth's surface, it lies 840 feet below sea level. Only 13 miles from Jerusalem, it is 3,500 feet below the Holy City.

Misery in the "Kingdoms of the World"

Above the town towers the Mount of Temptation, where the Devil led Jesus and "shewed unto Him all the kingdoms of the world" (Luke 4:5). Today Satan could show Him only human misery and suffering.

Below, the land is dotted with thousands of tents and thousands of ragged Arab refugees. These homeless men, women, and children, who fled Israel two years ago and cannot return to their homes until the issue is settled, huddle together in their despair and await their fate.

Their thirst is quenched from the same fountain which Elisha sweetened with salt (II Kings 2:19-22), but not their thirst for home.

The plight of these homeless souls is the saddest in all the Holy Land today. At 'Ain es Sultan camp (pages 709, 727), close to "where the walls came tumbling down" before Joshua's trumpets, I encountered the first of many Arab refugees I was to see. Most of them would starve if it weren't for UN and Red Cross relief.

"They talk of history," one of them said to me, "but what is history compared with a man's own home?" These restless, despairing Arabs are one of the world's touchiest problems today.

With a heavy heart I started my climb to the city of Jerusalem (page 735).

A Mosque for Omar's Deed

Upon arriving, I went first to the American Colony, where old friends greeted me warmly. That evening I strolled through the shadowy *souks* within the historic walls of the Old City to Christendom's holiest site, the Church of the Holy Sepulcher. The tiny gate to the courtyard was locked. Above me towered the minaret of the Mosque of Sidna (Caliph) Omar, to whom the Patriarch Sophronios surrendered Jerusalem A. D. 637.

When Sophronios invited Omar to join him in prayer in the Holy Sepulcher, then the Church of Constantine, the latter begged to be excused. Omar explained that, if he did,

his Moslem countrymen might claim the church. He said his prayers near by. The mosque which commemorates his good deed still shines down on Christian pilgrims.

As I stood there, a Sudanese policeman, in soft-spoken Arabic, asked Allah's blessing on my evening. I tramped home, listening to the sound of heelless slippers of the half-veiled East. The spell of Jerusalem was upon me.

In the Jerusalem *souks* the lights and shadows of oven and forge, the rich glow of oranges, eggplants, and tomatoes, the peddlers' street cries and the "oo-ah" warning of the muleteers, the smell of spices, new boiled coffee, and fresh-baked bread, all appeal more to sense than to soul. But this, too, is the Holy City.

One day, as I left the American Colony to take in some sights of postwar Jerusalem, a military convoy passed along Nablus Road. Arab forces were escorting Jewish guards to Hadassah Hospital inside the Arab lines. Once a month road traffic stops long enough to admit the Jews and change the skeleton guard at the closed-down hospital.

Victims of Holy Land War

Looking up to Mount Scopus from the north wall of the Old City, you can see the Rockefeller-endowed Palestine Archaeological Museum, which is still open but has little hope of new finds (page 726). Since Palestine is broken up, new discoveries will go either to a Jewish or Arab museum, unless Arab, Christian, and Jew can unite to keep the splendid establishment alive.

Another great institution on Mount Scopus is closed. Because access to Hebrew University lies in Arab territory, the classrooms and laboratories of the modern campus are empty. Ironically enough, Arab College lies in the Jewish section of Jerusalem and no longer functions.

From the Mount of Olives I looked down on the walled city, bathed in morning light. Then I descended a steep path to where Jesus wept over Jerusalem. I passed Gethsemane, climbed to the Temple Area, sought out the Wailing Wall of the Jews and the other antiquities of the Walled City.

To me, few spots have the quiet dignity of the Haram esh Sharif—the Noble Sanctuary (page 728). It was here that Solomon built his Temple and Herod the one where Jesus taught. The peaceful mosques repeat the Christian promise: "Come unto me, all ye that

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Geography of the Jordan," by Nelson Glueck, December, 1944; and "Canoeing Down the River Jordan," by John D. Whiting, December, 1946.



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George Fickner—Times-Lens

"Come and Dance the Hora!" Israeli Students Shout at a Jerusalem Festival

With bright blue-and-white Israeli flags flying in the background and the orchestra beating out a stirring rhythm, young people perform their national dance before an eager audience at a park in the New City. Most popular of all Hebrew folk dances, the hora is frequently danced at farm settlements.

labour and are heavy laden, and I will give you rest" (Matthew 11:28). If some tired believers fall asleep beside the prayer niche, it is Allah's will.

Jerusalem's "House of Prayer"

In the center of the Sanctuary stands the magnificent Dome of the Rock, whose large, dark-gray dome is probably the most graceful in the world (page 735). The beauty of this mosque is even more remarkable when one considers that the original Dome was built at the end of the 7th century.

The rock mass on which it stands is said to be the stone from which the Prophet Mohammed ascended to heaven on his winged steed, el Burak; but long before the 7th century it had been revered.

The mosque (also called Mosque of Omar) stands as a masterpiece of Moslem architecture. Next to Mecca's Kaaba and Medina's mosque, it is the edifice most revered by Moslems. Jordan's King Abdullah (page 745) often comes to it to pray. Indeed, as Isaiah prophesied and Jesus desired, the Temple area has become a "house of prayer for all people."

Visitors pay admission, but there is no commerce in the area from which Jesus "cast out all them that sold and bought in the temple" (Matthew 21:12). So I was surprised to see people coming from the Golden Gate carrying food. I went for a look.

What I found was a 20th-century echo of Isaiah's glad call: "Come ye . . . that hath no money"! Red Cross relief rations were being distributed.

Christmas activity in Jerusalem is rivaled only at Easter. Then the visitor could easily do nothing but go to church all day for nearly two weeks. When the Jewish Passover and the Easter of the Roman Catholics are finished, the Easter celebrations of the Greek Orthodox, Syrians, Copts, Armenians, and Abyssinians begin. In 1950 the Catholic and Orthodox Easters were celebrated on the same day.

Pilgrims Hail a Modern Saviour

The first big event of Holy Week is the Palm Sunday procession (page 715) from Bethphage to Jerusalem, along the route by which Jesus rode into Jerusalem and "a very great multitude spread their garments in the



711

National Geographic Photographer Howard Owen Williams

Homeless Arabs Take Refuge Where Roman Gladiators Dueled 1,800 Years Ago

Amman was called Philadelphia when this 4,000-seat theater was built. No spectacles take place in the ruin today, but new buildings go up all around. Refugees sleep in corridors through which wild beasts entered the arena.

way" and cried, "Hosanna . . . Blessed is He that cometh in the name of the Lord" (Matthew 21:8, 9).

Today, as in Crusader times, thousands of Christians retrace the route. I joined a group of Roman Catholics as they gathered in the garden of Bethphage. We marched over Olivet, descended past Gethsemane, and passed through St. Stephen's Gate (page 724) to St. Anne's Convent.

At the end of the hot, dusty walk we assembled in the courtyard of St. Anne's. Suddenly there was a rustling. Women began waving their palm fronds as other women, long ago, had saluted Jesus. A priest had just ridden in on a donkey. Those around me insisted he represented the Saviour.

Christ in horn-rimmed spectacles and carrying a camera! I refused to believe it. Then I learned the facts.

A Catholic priest from Wisconsin had fallen on the ice at home and broken his leg. Nevertheless, he refused to abandon his plans for a Holy Year pilgrimage. But his lameness would prevent him from marching in the long procession over the Mount of Olives. Quite sensibly, he rented a donkey and was more surprised at the greeting he received than anyone in the procession. Thus a short-lived legend was born.

On Maundy Thursday the Greek and Armenian clergymen don their most ornate vestments and put on the best show of Holy Week, the Washing-of-the-Feet ceremony, to commemorate the Last Supper. The Greeks hold their awe-inspiring service in the courtyard of the Church of the Holy Sepulcher in the morning (page 721).

Curtain Time in St. James

In the afternoon, crowds flock to the Cathedral of St. James to witness the colorful Armenian ritual. Against a backdrop of flickering candles, choirboys in gold-embroidered damask robes begin to chant in high voices.

Then the handsome blue satin curtains hiding the altar parts, and a carefully executed drama unfolds. Amid the dazzling glitter of silver, silk, and brocade, each of the priests, who represent Christ's Disciples, goes before the kneeling Patriarch to have his feet washed, wiped, and anointed with oil (page 717).

Consular flags at half-mast quietly announce Good Friday, when reverent pilgrims retrace the Way of the Cross from Pilate's judgment seat to Calvary.

Easter Saturday heralds one of the most spectacular ceremonies of Holy Week, that of the Holy Fire.

Under a high dome stands the little Chapel of the Holy Sepulcher. Within it a cracked marble slab hides the rough-stoned tomb of Christ. On two sides of it are small windows from which fire bursts out to send the crowds into wild ecstasy. The fire is symbolic, but some Greeks, Armenians, and Copts believe it comes from heaven.

Sturdy youths snatch the fire and fight their way to the various chapels with lighted candles. Thousands of spectators reach forth to receive the fire on their own candles. With the smell of burning wax and the excitement of the crowd, the ceremony ends in tumult, which some call *bedlam*, a shortened form of the word *Bethlehem*.

Tom-toms Herald Easter

That night, under a gaily decorated tent on the roof of St. Helena's Chapel, the Abyssinians parade to the beat of tom-toms. Bright-eyed boys proudly strut beside their bishop with his jeweled umbrella and glittering robe, in the traditional search for the body of Christ. Then the sound of drums dies away. The quiet of Easter Eve descends on the Holy City.

On Easter Sunday I climaxed the almost endless succession of Holy Week ceremonies by attending a Protestant service beneath purple Judas trees outside the Garden Tomb.

Somehow this spot retains the appearance of an ancient burial place and gives added meaning and simplicity to the memory of Christ's death.

One day, with the permission of an Arab Legionnaire, I looked down into Israel from the Old City walls near Zion Gate. Officials in Washington had promised me every help, except that of bridging this 50-yard gap of no man's land between Jordan and Israel. If the information I got had been correct, I would have had to detour to 'Amman, Damascus, Beirut, and Cyprus before reaching this spot in Israel, below my very eyes.

Jewish friends in New York had urged me to attend the second anniversary of Israel, celebrated this year on April 23. There was no certainty that I could get back into Arab territory. But a national holiday, for which the wandering Jew had waited nearly 1,900 years, could not be ignored.

I finally obtained permission to make the crossing. I carried my equipment from Jordan to Israel and later came back the same way. Thus a 600-mile trip was shortened to a brief walk from one taxi to another.

I found myself standing in the New City, which has grown up in the last 100 years outside Jerusalem's ancient walls. It is



Roman Catholic Pilgrims on Palm Sunday March from the Mount of Olives

Cypress groves around the bulbous-spired Russian Church and olive trees near the Franciscan Basilica mark the site of the Jerusalem garden where the three Disciples fell asleep and Judas betrayed Jesus with a kiss (Matthew 26:49).



1000

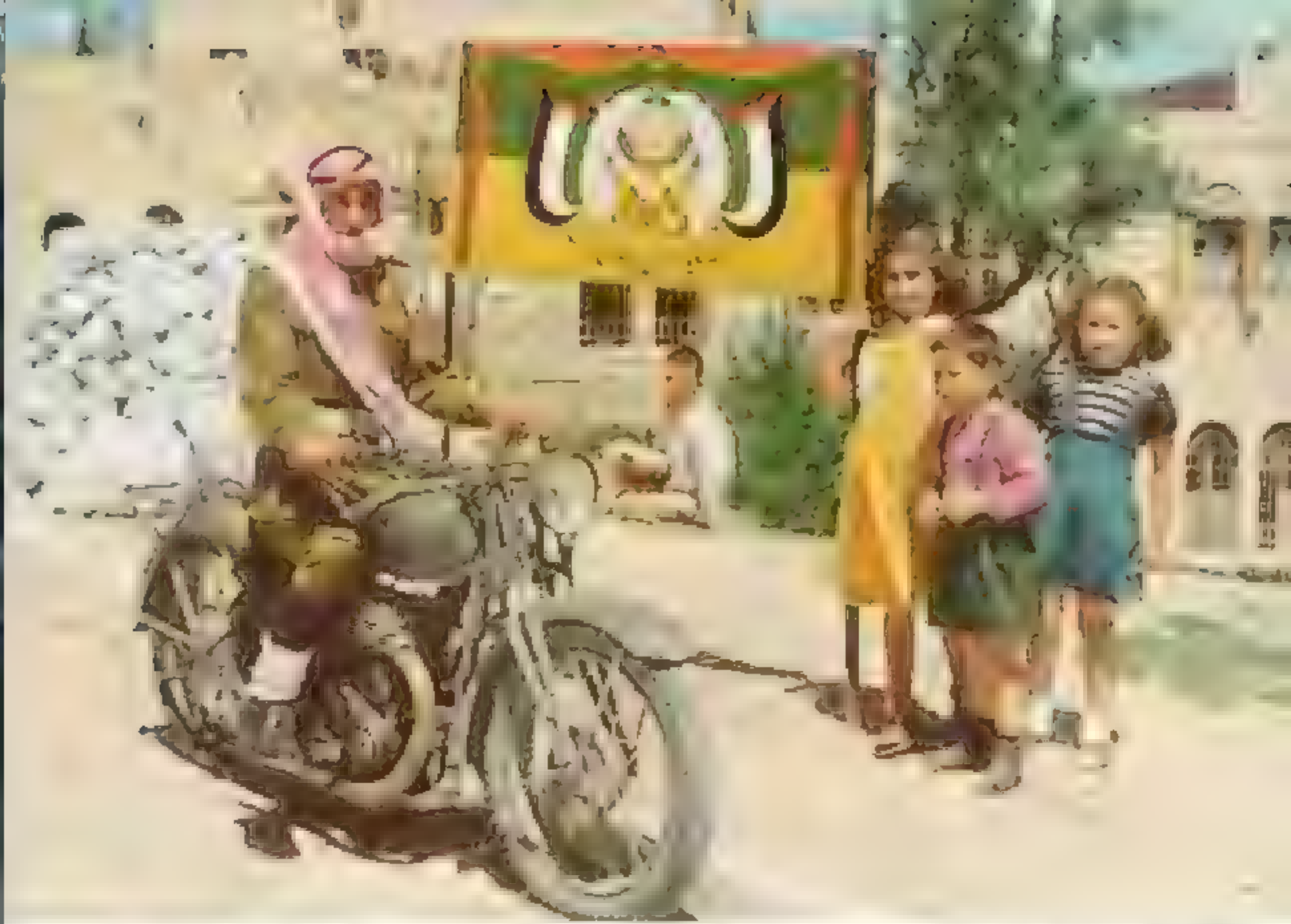
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with and her father by King's College. American Field Force Headquarters Germany.





4 Jordan's Arab Legion Soldiers Guard Jerusalem's Uneasy Peace

Jerusalem's Arab Legion soldiers guard the city's peace. The soldiers are seen in the foreground, and the city's buildings are visible in the background.

5 "Down Another Brick!" Shouts an Official to Independence Parade Spectators

A man in a white shirt and dark pants is shouting "Down another brick!" to a crowd of people. The crowd is in the foreground, and the man is in the background.





Humanity in Three Tiers Picks Walls Looking into Holy Sepulchre's Courtyard

At the top of the wall, a large crowd of people is gathered, looking down into the courtyard below. The courtyard is filled with people, some standing and some sitting, looking up at the crowd on the wall. The scene is set in a courtyard with a large, arched structure in the foreground.



Greek Priests Perform the 12 Mysteries at the Last Supper

On the last night of his life, Jesus Christ performed the twelve mysteries of the church at the Last Supper. The twelve apostles were present, and Jesus Christ, the Son of God, presided over the ceremony. The twelve mysteries are: Baptism, Confirmation, Eucharist, Penance, Anointing of the Sick, Holy Orders, Matrimony, and the seven sacraments of the church. The twelve apostles were chosen by Jesus Christ to be his witnesses and to spread the Gospel to all nations. The twelve mysteries are the foundation of the church and are essential for the salvation of the soul. The twelve apostles were chosen by Jesus Christ to be his witnesses and to spread the Gospel to all nations. The twelve mysteries are the foundation of the church and are essential for the salvation of the soul.

The twelve apostles were chosen by Jesus Christ to be his witnesses and to spread the Gospel to all nations. The twelve mysteries are the foundation of the church and are essential for the salvation of the soul.



And Jesus said unto the Blind Man, "Go, Wash in the Pool of Siloam."

THE ILLUSTRATION IS BY THE HAND OF AN AMERICAN ARTIST. A COPY OF THE ILLUSTRATION IS IN THE POSSESSION OF THE AMERICAN BIBLE SOCIETY, NEW YORK, AND IS LOANED TO THE UNIVERSITY OF CHICAGO, ILL.



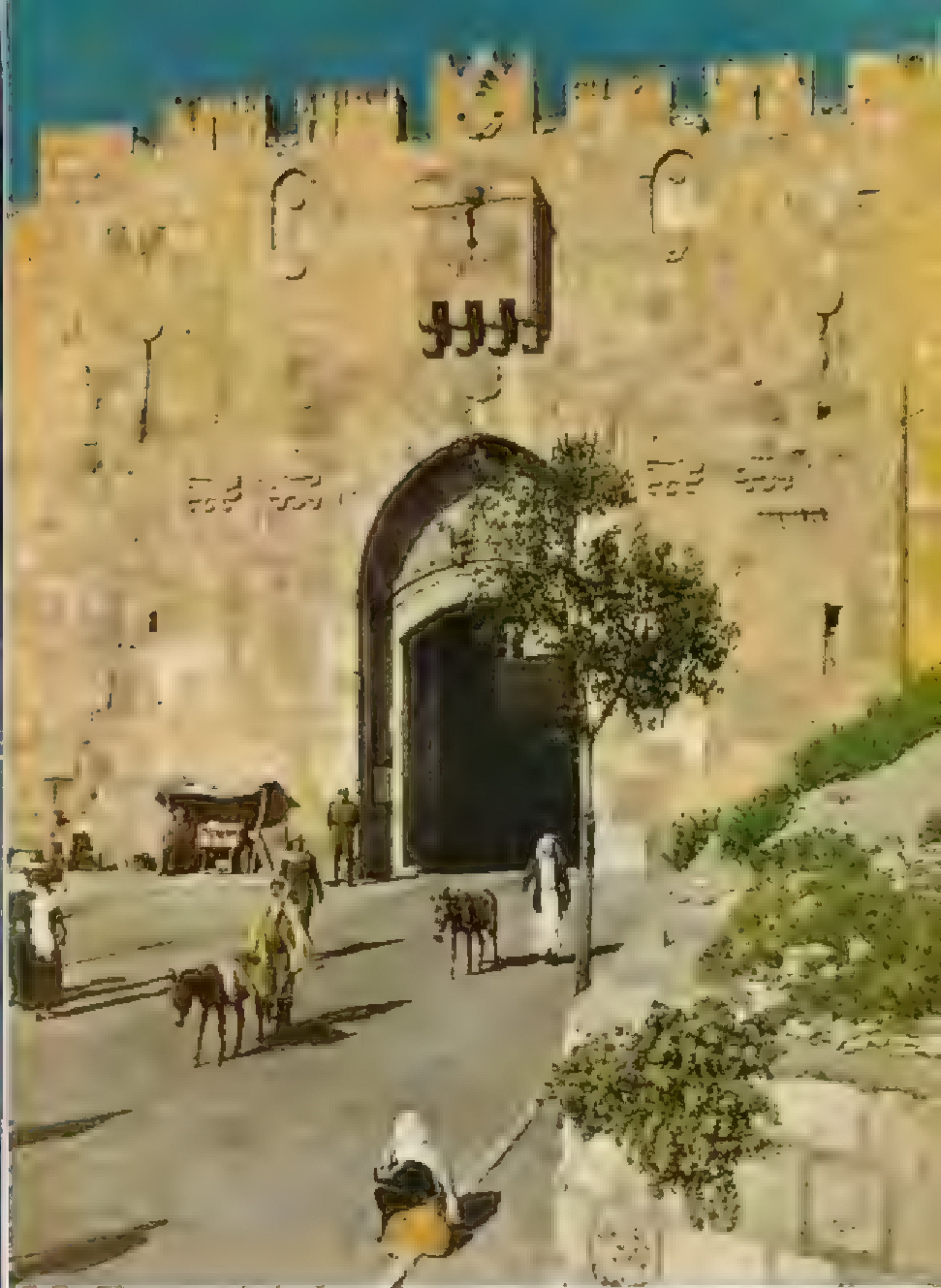
*** Jewish Children Urgently Await a Promise; No Concentration Camps for Them!**

For the Jewish children of Europe, the promise of a safe haven in Palestine is the only hope for their future. They are now being held in concentration camps, and their families are being persecuted. The Jewish people are now being persecuted in many countries, and the Jewish children are being held in concentration camps. The Jewish people are now being persecuted in many countries, and the Jewish children are being held in concentration camps.

*** Laws Fortify Arab Children's Fears; Food and Hope in UN Kitchen**

Arabs in the Holy Land are now being persecuted by the Jewish people. They are now being held in concentration camps, and their families are being persecuted. The Arab people are now being persecuted in many countries, and the Arab children are being held in concentration camps. The Arab people are now being persecuted in many countries, and the Arab children are being held in concentration camps.





Donkeys Emerge from the Jerusalem Which Christ Entered "on Ass's Collar"

St. Stephen's Church, Jerusalem, 1880. The scene is taken from the "Mural of the Passion" in the Church of the Holy Sepulchre, Jerusalem, 1880. The scene is taken from the "Mural of the Passion" in the Church of the Holy Sepulchre, Jerusalem, 1880.

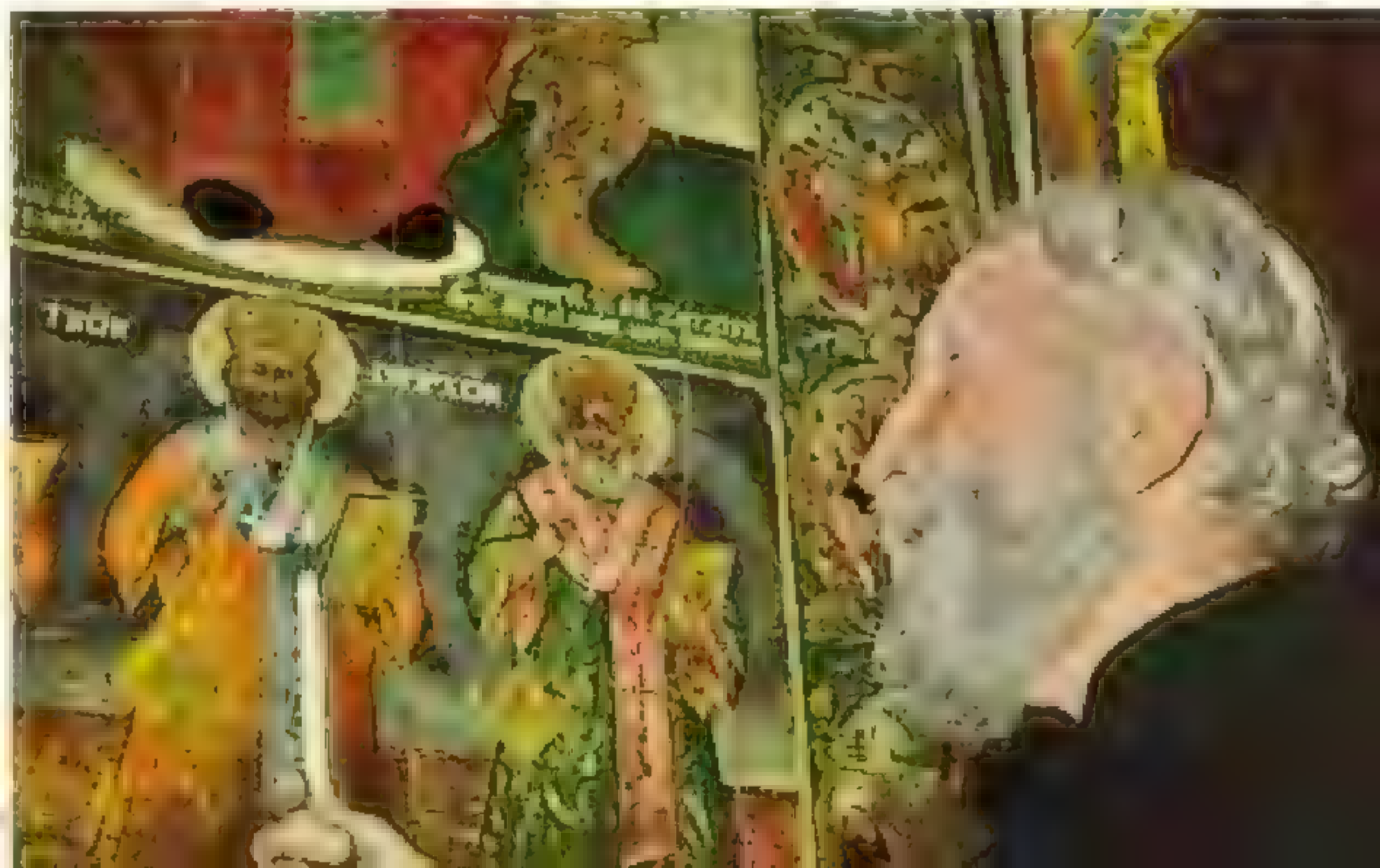


✧ Bethlehem Marks the Nativity with a Stamp: an Arab Policeman Stands Watch

Since a sudden attack by the Syrians in 1948, the town of Bethlehem has been under the watchful eye of the Arab police. The town is now a quiet place, and the people are living in a state of peace. The town is now a quiet place, and the people are living in a state of peace.

✧ A Greek Priest in Naxos Church Inspects Byzantine Paintings

Bethlehem's history as the Nativity site is well known. The town is now a quiet place, and the people are living in a state of peace. The town is now a quiet place, and the people are living in a state of peace.





Residential House, Block, Kanton Canton, Kanton, of the War Which Divided Palestine Between Israel and Jordan

Photograph taken by the author, 1948, during the 1948 Arab-Israeli War, showing the building after the war. The building is a large, multi-story structure with a central tower, and it is surrounded by a wall. The photograph is a black and white print, and it is mounted on a page from a book.



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Arab Refugees Assemble for Red Cross Rations near the Mosque of Umar

Jerusalem's famous mosque (page 745) houses the sacred rock from which Muslims believe Mohammed ascended to heaven in his white cloud. The open area called the Nabl Street is adjacent to the mosque.



6 An Iron Soldier Digs Trenches in Israel's Battle for Water

The 15-ton crawler tractor with a 100-hp engine is a workhorse. By digging and laying trenches, Jews can reclaim the desert. The mechanical digger makes its way from Beer Sheva to the Dead Sea.

7 Prince and Pauper Kneel Side by Side, All Moslems Are Equal Before Allah

Islamic spirit that binds all around is seen in the daily prayers of the Moslems. At the Al-Azhar Mosque, the prince and pauper kneel side by side, pray the same prayer, and all are equal before Allah.





Hand Finishing Is Workday After in Bead, Loom and Needlework Center

Manuscript received 20 July 1993; accepted 15 October 1993.

the de facto capital of Israel and is today as Jewish a city as any other in the country. There was a holiday air. A big military parade moved down Jaffa Road to celebrate Independence Day.

Legally, Israel is not at peace with any of the seven Arab countries it fought in 1948 and 1949 (page 737). Yet there has been no active warfare for over a year and a half. The government of the young nation is functioning smoothly, even though rationing and price controls are in effect.

Friends warned me of the austerity in Israel. But at the King David Hotel I found the rooms spotless, the service intelligent and polite, and the food as delicious as it was when I joined friends there in 1931.

During my stay in Israel, I seldom ate meat. The land is too limited and too expensive for large-scale grazing. So "Lutherlohn," as in old-time Manhattan, suggests graft.

With my delicious diet of fish I usually drank orange juice.

During World War II I saw rotting oranges piled deep in the groves around Petah Tikva, near Tel Aviv. Thirsty travelers drank synthetic pink or purple soda. Oranges were everywhere, but orange juice was expensive and warm. So today a cold, dewy bottle of orange juice, cheap and refreshing, seems one of Israel's triumphs.

Immigrants Crowd Valley of Elah

In one of the two cars New York columnist and showman Edly Rose donated to the Israel Public Information Office, I covered the new State from Beersheba to Dan with Joe Davis, a native of New Zealand and now in Israel.

In the Valley of Elah, where David is said to have slain Goliath, is a new camp, crowded with immigrants from Cochin, Bombay, and Rangoon. I talked with a 60-year-old woman dressed in a Mother Hubbard and with her bare feet in wooden clogs. She was waiting her turn in line to draw water from the well. A lady in Rangoon, she is now a tent dweller in Israel.

"I'm so happy to be here," she said. "But I do miss my servants."

At another camp near by, Davis and I stopped for a drink of milk, served by a buxom girl with sparkling white teeth. "Nice girl, naïve and unspoiled," I thought to myself, "probably has led a sheltered life."

Actually, she had escaped from Russia, made her way through Poland and Czechoslovakia to Italy, embarked on an illegal ship, was captured and sent to Cyprus. Now she has a home.

Her story is typical of so many in Israel. After World War II they poured into what was then Palestine from Europe's ghettos, Hitler's hunger camps, and the postwar displaced persons camps.

When the State of Israel was proclaimed, thousands more came from 52 countries in the four corners of the earth. They came from countries with large Jewish populations, like South Africa and the United States. They also came from places like Greenland, Java, and Afghanistan. Each has his own story to tell.

Israel's Most Precious Crop

The next day Davis and I set out for Galilee. Our first stop was at Oran, a children's village on the Lish Plain of Sharon. There are scores of these settlements in Israel, most of them orphanages (pages 708-723, 746).

At Oran a teacher proudly pointed to a group of youngsters enrolled in the nursery school. "You are looking at Israel's most precious crop," he said.

Like a new grove of orange trees, these youngsters are given the most thoughtful and loving care. They are cherished and protected with patient attention. They get special diets and the best of food. Several months ago, butter was dropped from rations so there would be more for the children.

Israel stakes its bright future on its youth. It was the young people who fought the war. And in the children's villages and settlement schools youngsters are being trained for the future and for peace.

I was reminded of what an old rabbi once said: "The world is saved only by the breath of school children."

At Oran the children grow up in a cheery atmosphere, feeling that they are loved and that they "belong." They learn to live together and do most of their own work in the shops and gardens, with a minimum of adult supervision.

As we left, we picked up two French-speaking orphans who were leaving Oran to "go home," unaware that no parents would greet them there. As we left the flowery children's village, their guardian cuddled them close, to hide her tears.

Expanding Orange Groves

Before World War I, in this area, I saw Arab and Jewish orange growers competing in free shipyard on equal terms. Later, when Zionist funds poured in, Jewish groves pushed north on the fertile plain and down toward the southern desert.

This year, watered by elaborate spraying



Up and Over—An Arab Vaulter Leaps for His Rashidia College Team

Arab vaulter, who is one of the most popular and best known vaulter in the Arab world, is shown in the picture above.

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and the other is a water tower in Texas, the Central it an branch Corporation

Arctic Survey of the Arctic Regions, 1894-1895 Knowledge of the

The Arctic regions of the world have long been a subject of interest to the human mind. The knowledge of the Arctic has increased steadily since the first voyages of discovery. The Arctic is a vast and desolate region, and its exploration has been a long and arduous task. The knowledge of the Arctic has increased steadily since the first voyages of discovery. The Arctic is a vast and desolate region, and its exploration has been a long and arduous task. The knowledge of the Arctic has increased steadily since the first voyages of discovery. The Arctic is a vast and desolate region, and its exploration has been a long and arduous task.





Shipping Time in 'Bin Gey: Jewish Farmers Ship Tomatoes Across the Sea of Galilee

and I said, 'Instead of giving me a trial on Bell Street, you're going to let me play *Team and Run* on Washington Circle. You know I believe that the best place for a soccer field is here, so you should make a decision.'



An Israeli Tends His Sheep and Doilies as Lookout along the Syrian Border

This was a scene in the early days of the Yishuv in Israel, a nation of nation-building, when the Jewish community was still small and the Arab population was large. The Jewish community was still small and the Arab population was large.

Still there was a shortage of sheep and doilies. The Jewish community was still small and the Arab population was large. The Jewish community was still small and the Arab population was large.

"Operation Magic Carpet"

The Jewish population in Israel was still small and the Arab population was large. The Jewish community was still small and the Arab population was large.

Dr. I. Wolfberg, writing in *BYZD in Israel*, argues that a majority of the world Jews should settle in Israel—an average of 10% and a new civilization.

But one Zionist expert had a better idea. He suggested that would help the new nation. He said that would help the new nation. He said that would help the new nation.

Most spectacular of mass immigrations was "Operation Magic Carpet," which brought in Jewish refugees from Yemen, the tiny kingdom in the southwest portion of the Arabian Peninsula, some 1,000 miles from southern Saudi Arabia. At the beginning of the operation, 100 Yemeni Jews were brought from their mountain rock home to Saudi Arabia, weighed in to find a few pounds of fat.

Plus the crowded little Israel for his national immigration policy when the nation could barely get its feet under it to receive newcomers. But some good still did in the end.

"To Build Up a Westland"

Israel was a small nation, the size of a Jewish homeland. As such, it was a Jewish homeland. As such, it was a Jewish homeland.

Joseph Weizmann was a Jewish leader. He was a Jewish leader. He was a Jewish leader.

In 1950 that Land Is the Jewish Republic of Israel. Jewish money and energy have reclaimed swamp and desert, and the nation's long-range plans show imaginative foresight.

In Rehovot the Weizmann Institute of Science, one of the finest research centers in the Middle East, is attacking two basic problems of world-wide importance—protein substitutes for meat and the purifying of salt water.

Vegetable Proteins Serve as Meat

Scientists have demonstrated on an industrial-commercial scale that vegetable proteins can be so transformed as to serve in place of meat. And a pilot plant in Rehovot is already desalting brackish water by chemical means.

My driver to Rehovot was a black-eyed Jewess wearing a shapely sweater, a checked skirt, and mannish boots. As we charged through traffic in the narrow streets of Tel Aviv and then hit the open road, she sang, first in a soft, trilling soprano, then in a rich alto. From a pleading "Last Rose of Summer" she picked up momentum and roared out with the "Toreador" song.

She was only 19 and a half years old. She escaped from Russia to Afghanistan, Bombay, Tehran, and then to Israel. She spent almost three years in the Israel Army, and in the Arab-Jewish war she doubled in jeep and machine gun.

"I'd drive to where the fighting was hot and then pop, pop, pop!"

She had seven wounds in her right arm and a bullet in her right knee. She hopes to study music in New York. She speaks Arabic, Persian, Russian, French, English, and Hebrew. And when I took a seat in her cab, I wondered whether we would have to talk in sign language! Her name is Scheherazade. What a story she could tell.

Poor but Loyal Hearts

As I left Israel and rode past two frontier shacks beside a blacked road into Jordan, I still thought of her. If age were told by experience, she would be an old lady.

In Old Jerusalem I met Dr. Munir Musa, a Christian Arab refugee. He was trained in Texas and now directs health work in Jordan. He brought me up to date on the health situation.

Under the British mandate, medicine in Palestine was pretty well socialized, since few patients could afford to pay anything. Doctors served for a salary, and the poorest mother

could have her baby as a mother should. Contagious diseases were isolated and epidemics controlled.

When the British withdrew, mandate salaries were discontinued, but the Health Department carried on with loyal hearts—and flat pocketbooks. Salaries now are a mere fraction of what foreign doctors and relief workers get. Arab doctors and nurses are pulling in their belts and sticking to their jobs. Without them the health standards of the thousands of refugees and citizens would be lowered considerably.

With Dr. Musa I drove down to the hill town of Bethlehem, where birth is hallowed. People all over the world will turn their thoughts at Christmastime toward the Church of the Nativity (page 725), built over the traditional site where Jesus was born and laid in a manger.*

From this scene of potential pilgrimage, we motored south to Hebron. At the city's health center uncared Arab infants were being weighed. The mothers, lacking nourishment themselves, have little milk for their babies. But they look like Madonnas, their faces lit with mother love. They smiled tenderly on their newborn babes, just as Mary did nearly 2,000 years ago.

Wise Men Still Follow the Star

As I got my camera ready to take some photographs, one woman dropped her veil. There was whispering among her companions, and again she showed her face.

"You know what she said?" asked a nurse. "That if a friend of the doctor wants a picture, any mother should be proud."

So in Hebron, where the wives of Jewish patriarchs lie buried, Moslem women braved my lens out of gratitude to Christian doctors who give their lives to serving their fellow men in this land of three faiths.

As we turned back to Jerusalem, long shadows darkened the fields. From Bethlehem on, the new road is hilly and long. But it passes close to the field where shepherds watched their flocks at Christmastime, where angels sang of peace on earth and good will toward men, and where Three Wise Men—as wise men still do—followed the Star.

* See "Bethlehem and the Christmas Story," by John D. Whiting, NATIONAL GEOGRAPHIC MAGAZINE, December 1949.

For additional articles on Jerusalem, Palestine, and other Bible lands, see "National Geographic Magazine Cumulative Index 1896-1949."



"Where Can I Park?" Is the Problem. (Automobile Enjoys a Houston-style Boom)

The Houston Automobile Club reports that there are now more than 100,000 automobiles in the city. The club says that the city is now the largest in the world in the number of automobiles.

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12. 12. 1912

See [here](#) I talked for 10 minutes the steps of building the app and the time and effort

[The page contains faint, illegible markings or bleed-through from the reverse side.]



Devout Pilgrims, Restless Children Await a Service in St. James Cathedral

At the cathedral in the city of New York, the children of the city are waiting for a service. The children are standing in the nave of the cathedral, and the children are waiting for a service. The children are standing in the nave of the cathedral, and the children are waiting for a service.



This temple, fashioned in Pearl Shell, is a masterpiece of the Bethlehem Carvers
 with a courtyard of Jerusalem shop fronts. The temple is a masterpiece of the Bethlehem Carvers
 with a courtyard of Jerusalem shop fronts. The temple is a masterpiece of the Bethlehem Carvers
 with a courtyard of Jerusalem shop fronts.



* Arab Butchers Sell Bagged Sheep, Which Show Fat for Famine Times

The sheep has a red line marked with a red wax pencil, indicating its value. The animal is being prepared for slaughter, and the men are standing next to it. The background shows a simple building with a window.

* Seribes Jordan's Public Scribes, Do a Risky Business in Amman

These men are the public scribes in Amman, Jordan. They are shown in traditional Arab attire, including head coverings and long robes. The background shows a simple building with a window.





4 Tennessee Is the 'Home for Youth in Peace as in War'

Tennessee is the 'home for youth in peace as in war' because of its many fine schools and its many fine athletes. The state is the 'home for youth in peace as in war' because of its many fine schools and its many fine athletes.

5 Local Gives Everything to Children; No Sacrifice Is Too Great

Local gives everything to children; no sacrifice is too great. The local gives everything to children; no sacrifice is too great. The local gives everything to children; no sacrifice is too great.



Mid-Century Holland Builds Her Future

By SYDNEY CLARK

A THE big air liner circled to land on Amsterdam's Schiphol field, where I had previously come to earth several times before and since the war, I peered below, trying to glimpse the condition of this field which had been utterly devastated by the ravages of war.

When I stepped from the plane, I promptly saw how energetic is this country, the Netherlands, which we inaccurately call "Holland."

In the spring of 1945, when the war ended, Schiphol was a ruin, seemingly lost to the world of transportation. Literally nothing was left of it except a fantastic mass of rubble and bomb craters.

Within two months the Port Authority of Amsterdam and the KLM (Royal Dutch Airlines) had cleared the area, established a few temporary runways, and erected on the field a wooden town of offices and workshops around a central stem called Liberty Street.

From Shanty Town to Modern Airport

At the time of my first postwar landing, in the spring of 1948, Schiphol still seemed a shanty town, though raring with activity. Then began the flow of Marshall Plan funds and materials to back the country's own enormous energies.

Courage, drive, resourcefulness, vision—by any word the spirit of the Netherlands is a force in the Western World. To see that spirit in action is an experience. And nowhere is it better exemplified than here on Schiphol field.

Today the wooden town is largely replaced by a gleaming one of steel, concrete, and glass. There are 11 large hangars (one named "Willem van Orville Wright"); workshops where 6,000 skilled mechanics and technicians service the air fleets of Holland and of foreign airlines; a nearly-million-dollar engine test station; and a station building with a handsome restaurant and a roof café.

A thousand persons can eat, and very well, in Schiphol at one time, but these facilities are already too small, for on big days there are sometimes 10,000 visitors, besides 2,000 passengers coming and going.

"Schiphol is my window to the world," says Albert Plesman, KLM's founder and president. But a window is a two-way thing, and this one has been my window to the Dutch spirit.

Ten million persons now live behind this window, within the small house of Holland

(map, page 752), and therein lies an almost frightening challenge to the nation. The 10,000,000 mark was passed late in 1949, though before the war the nation numbered only about nine million, and a century ago three million.

In the decade of the 1930's it was fashionable to worry about the probable early decline of the population. Now the worry, real and acute, is quite the other way around, for it is feared that in 15 to 20 years there will be 12 million in this congested dwelling place.

By enormous labor and expense the nation is adding a bit of land here and there, taken from the resentful sea, but these small additions cannot solve the problem.

Holland is scarcely larger than Maryland; yet it has about five times the population, though Maryland is one of our more densely populated States. The country's birth rate is three times its death rate. Statistically the expectancy is just under seventy years, among the highest in the world.

At Kinderdijk in South Holland I entered an old windmill. Its wings are now stilled as are many others in Holland, because of the far greater effectiveness of electric pumps.

A stout woman greeted me in stoutest Dutch, and I could catch scarcely a word of what she was saying; but I caught her smile of welcome, a warm one.

Old Windmill Houses Family of 12

Children and more children, all from the same mold, with blue eyes and unruly straw-colored hair, swarmed about her. There were 10 of these youngsters; with the mother and the laborer-father they were living in the mill by government arrangement.

Members of the family took me to every part of their novel windmill home, showing me the old dwelling contrivances, such as recessed beds, crescent shelves, improvised chairs, and ladder-stairs. They showed me, too, that the mill could still work if war should come again and shut off electric power.

This Kinderdijk home was an illustrated lecture on Holland's desperate housing short-

Holland has two obvious ways to attack her chronic problem of congestion, cruelly increased by the dwelling casualties of war. One is industrial advancement, with new thousands of city flats (page 749). The other is land—land and more land—for farming families.



Wall by Wall, Row upon Row, New Homes Take Shape at Linderoen

[illegible]

...the perpetual struggle of Holland
...the water

The story of Highland summer week starts with an account worthy of the best travel literature except H. J. Ford, which we have heard before for many years.

It is not clear the vertical extent of this, but on the map and the section (page 582), almost all of the Province of North Brabant south of the sea level of the new contour (the Kingdom of the Netherlands is below sea level) is at about 17 m below sea level. So this large portion of Zeeland, of Friesland, of Groningen, and of other provinces as well as other Provinces are below sea level water level.

Current flows seaward by this high. Zouma
Lake, formed by erosion across the Zouma
Zouba drainage, lies within the DRC.
After the 1990 eruption, the lake is only two-thirds

[illegible]

Two of four vast development, which are expected to be completed by 2002. Another two are under construction, and the last one is expected to be completed by 2003.

A projection is obtained in the same way, and it is found that 10 per cent of the surface area of the country is below 100 feet above sea level.

More than half of the nation's 100 million people now live at a lower level than men inhabit the great cities of America, and farther from what once had been the seat of our nation's power.

^a See also Newlin et al., 1986; Young, 1987; Zuckerman et al., 1980.
M = mean; SD = standard deviation; N = number of subjects.



Princess Margriet Unveils a Statue to a Hero Who Never Existed

Princess Margriet, daughter of the Queen of the Netherlands, unveiled a statue to a hero who never existed. The statue, a large, dark, abstract figure, stands on a raised platform. The princess, in a light-colored dress, stands on a raised platform, holding a sword. Behind her is a large, dark, abstract sculpture of a figure. To the right is a large, multi-story building with a prominent chimney. The scene is outdoors, with a paved area in the foreground.

— for an ordinary purpose. It took place less than three weeks before the official cessation of hostilities, and while negotiations leading to the cessation of hostilities were under way.

Fifty thousand acres were flooded by the breaching of two polder dikes in two places, and the Nazis openly boasted that they had it in their power to "return Holland to the 13th century."

Generators, Pumps Aid Reclamation

Low-lying Holland, submerged in flood by its water, the Zuider Zee, was and is maintained by giant locks at a level about seven inches higher than the sea. So it was only slightly brackish water which poured in such volume over the adjacent lands.

Peas cracked cheerfully in it, a blessed aid to the Dutch, for frogs do not like salt water. The willows did not die for their roots,

in this case, fortunately drank a palatable beverage.

Immediately upon the German retirement in May, determined Hollanders undertook the huge task of bailing out the Wieringermeer.

In three months the dikes were sealed and pumping could begin, partly by means of pumps purchased from America during the war by the Dutch government.

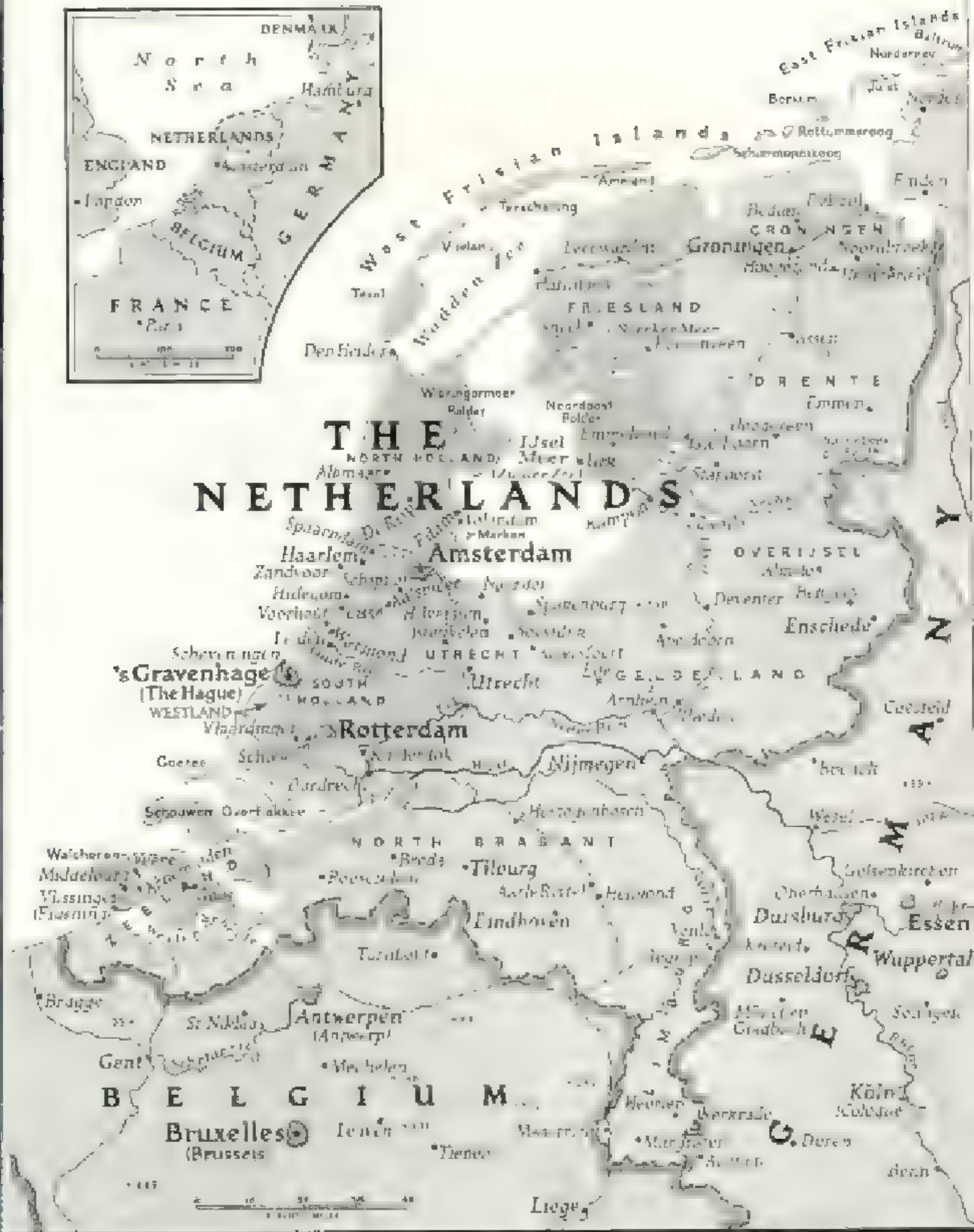
But when this campaign in 1925 the wind-sodden sky was the harbinger of the coming of 1940, and the German occupation of Holland in the 20th century, fair crops were growing. This was a miracle of achievement.

The nightmare of the past yields to larger dreams for Holland's future. I watched two magnificent developments in the endless war against the typical elements of nature.

A portion of the River Scheldt, south



THE NETHERLANDS



More than Half the Netherlands' Ten Million People Live Below Sea Level

The Netherlands is a small country, but it is one of the most densely populated in the world. It is a country of low-lying land, and much of it is below sea level. The people of the Netherlands have learned to live with this fact, and they have built a great system of dikes and canals to protect their land from the sea. The Netherlands is a country of great beauty, and it is a country of great industry. It is a country of great achievement, and it is a country of great hope.

of the Walcheren causeway, is being cut out to make the water come 12 to 20 feet to new polderland.

Fascinated, I watched the process. Willow fagots are knitted into big rafts, or sunk mats, which are floated into position, filled with stones, and sunk. Then "press quays" of clay are raised on either side and the middle portion filled with sand. The press quay on the sea side is heavily buttressed by a sloping wall of rock, neatly fitted but not cemented.

Thus a portion of the sea is contained, as diplomats would say, and the water within his new bit of Holland is pumped out. A local polder committee is formed to administer the land, under the supervision of the national government department called Waterstaat.

Those who benefit from the dike are taxed, as on the polderlands throughout Holland, according to the proportion of their property to the whole. A friend of mine in Veere, owning about half an acre, tells me that his local dike tax is about \$2 a year—not much for protection against the sea's revenge.

The pumps of Holland, by the way, are an increasingly potent company. In the earliest days men bailed out their land with buckets, carrying the water to the rude dikes they had built and emptying it on the outside. Then came hand-worked mills, with buckets fastened to big wooden wheels. The windmill followed and became the symbol of Holland, as it is, in romance, to this day (page 741).

Electric Pumps Replace Windmills

A few of these beautiful fant-winged mills still operate regularly, and all are considered a sort of pumping insurance in case of war. But most have given way to electrically driven pumps. Some of these are of enormous capacity. The largest pumping station in the North-east Forder can pump more than 574 million gallons of water a day.

My other example of how Holland now wages her war with the sea comes from Groningen Province.

Throughout this Province, and Friesland as well, many villages centre about a hillock, often man-made, called a *terp*. In olden times a *terp* was the refuge of its region. If the sea restrained its passions for a few decades, grazing lands, called *kraaijden*, developed around these mounds, and dikes could be built in expanding, concentric circles; but one never knew when some frightful storm might come to undo perhaps a century of such encroachments.

Now the whole Province, where there are no dunes to do the job, is rimmed by massive dikes, built with a long gradual outer slope

that braves the wildest waves. And man ever reaching for new land, is actually harnessing the sea to work its own boss!

It is this way. At a distance of perhaps 200 yards from the high-tide line, a rounded clay cake is built in the shadow sea, parallel to the beach. Every tide washes a little new silt over and within this barrier and leaves it there. Every storm of any size destroys the clay barrier, but it is easily rebuilt and again the sea brings in fresh sand.

Kwelder lands creep outward from the main dike, and sheep placidly crop the grass almost from the lapping waves. The grass is hardy, and gradually—almost surreptitiously, it manages to anchor the newly made strip.

The process is repeated over and over, and at long last—this harnessing may take a century—man builds an indestructible dike well out in what was the sea. This assumes the role of *waker dijk* (watcher dike), and the old inner one is called the *sloper dijk* (sleeper dike).

How Hollanders "Stretch" Their Land

Holland has thus made for herself a few more square miles of sorely needed land. The row of West Frisian Islands, ages ago part of the mainland, may, ages hence, again be mainland soil, for the gap is narrowing.

The taking of new land from sea and lake is by no means the sum of Holland's strategy in her struggle for space. She tries by every means to improve and even ingeniously to "stretch" the land she already has. Modern machinery and enlightened methods of cultivation in farming are a part of the program, but there is more.

For example, the innumerable ditches of the country are being replaced wherever possible by a system of drains, laid four feet deep in the earth. This is a triple advantage. Drained land yields considerably more than soggy land. The ex-ditches themselves become arable land.

And, finally, the size of single farms tends to increase to a point where the use of tractors and other mechanical implements is practical. Separate fields in Holland's north used to measure one or two acres apiece. Now in many sections they average five acres.

How Netherlanders build roads through peat bogs is an interesting oddity still unknown to many of the Dutch themselves.

A firm road cannot be built through Holland's squashy, below-sea-level bogs by any ordinary method, so an extraordinary one has been devised. Along the projected line a new canal is first dug by dredges that float in the canal they dig.

When several miles are completed, thousands of tons of sand are brought from old inland dunes, and large electrically operated blowers fill the canal solidly with sand.

Then the canal moves ahead and more sand is blown into the new stretch.

Looking on, I marveled as a main traffic artery thus advanced from Amsterdam to Utrecht through soggy lands south of the capital. Dutch engineers find that the Scriptural advice about building a house on sand doesn't apply to roads. The motorcars will come and beat upon that road and it will fall not, though it is founded upon sand.

"Happy is the land where the child burns his mother," is a seasoned Dutch proverb. It involves a neat pun on the word *moer*, a short form of *moeder* (mother) which also means "moor."

Fewer and fewer areas of Holland can now burn the peat of their mother moor; but the burning of another earth's oil is an increasing boon, and it is only since the war that Holland's earth has yielded oil in quantity.

Oil Flows from New-found Fields

The rich region of Schoonebeek, in Drente Province, barely within the eastern marches of the Kingdom, now produces more than 4,000,000 barrels a year, about a fourth of the national consumption. This oil stimulates the national economy, and for that reason it is treasured like liquid gold (page 750).

The Royal Dutch-Shell Group took the initiative in this geologically "likely" land as long ago as 1933, and in 1939 production seemed near. But when war loomed, and long before it struck Holland, explorations were sharply halted lest these fields tempt the Nazis unduly to aggression.

Not until 1945, after the liberation, was work resumed in earnest, and the advance has been spectacular. Two oil trains of approximately 5,000 barrels each roll daily out of Schoonebeek.

Standard Oil Company (New Jersey) now participates with Shell on a fifty-fifty basis in the development of the Schoonebeek field and in exploration work in the Netherlands.

Americans in general still think of Holland chiefly in terms of tulips and hyacinths; of windmills and wooden shoes and Alkmaar cheeses (pages 758 and 759); of the undeniable charms of costume villages such as Volendam, Staphorst (page 765), Spakenburg, and others in Zeeland Province.

This annoys some Dutchmen almost beyond bearing, though the country sorely needs the dollars that such beguiling things attract.

"Must we go on forever being quaint?" one

irascible businessman asked me. "Must we stosh about only in our tulip fields for 1,000 years more, wearing wide, short trousers and wooden *klemptoes*?" Then, in more practical vein, "Can't you tell your fellow Americans what we really are, and what we are doing?"

"That's a tall order," I said, "but I can and will tell some Americans some things your country is doing."

Marshall Plan Gave New Hope

The subject is, after all, of pocketbook interest, since every American, directly or indirectly, is contributing to *De Marshall-Hulp*, or Marshall Help, so vital to everything Holland is doing. This is woven into the entire fabric of Dutch economy and recovery. Some understanding of how it works is essential to an understanding of mid-century Holland.

On April 26, 1948, the first Marshall Plan ship, the *Noordam*, arrived in the Netherlands carrying 4,000 tons of grain. It was greeted with emotions like those of a castaway sighting a sail.

For the first 15 months of Marshall Plan operations Holland's allotment was 507 million dollars. For the second year it was nearly halved, down to 258 million. It is supposed to taper down to zero by 1953, and every Hollander hopes as ardently as does every American that it can actually terminate then.

At first, food and medicines were the most desperate needs. Good nourishment saved thousands of lives, and notably included food for cattle, so that they would give milk for the children. Medicines, especially streptomycin to combat the scourges of meningitis, saved other thousands.

Some of the things Holland is now doing with Marshall Help are too little known by Americans.

American tin plate, for instance, makes possible the packaging and vastly profitable exporting of Dutch dairy products.

American copper aids in carrying light and power across part of Holland, and also enters the railways, now nearly 50 percent electrified, to operate fully. American motors are used in many locomotives.

American coal has helped sustain the gas services of Holland. American carbon black is used in the manufacture of rubber tires.

American pigments and oils put color into Dutch industry, making various valuable exports possible, and into Dutch homes and Dutch life as well. Even the *roze kleur* used in the Kingdom would be of a neutral shade without Marshall Help pigments.

The flow of American industrial aid, furnished for the most part free, is funnel-



With Stephen Is. College in Bangs, Maine and Western Stage, Inc. Symbols of the Good Old Days

For the first 100 days of the year, the number of deaths was 1000. Then, for the next 100 days, the number of deaths was 1000 plus the number of deaths in the previous 100 days. This pattern continued for the rest of the year. A graph of the number of deaths over the year is shown below.

It is not clear, however, whether the results of the present study can be generalized to other populations. No studies have examined the health status of the black population in the United States, and the results of the present study may not be applicable to this population. Further research is needed to determine the health status of the black population in the United States.

REEDERIJ PLAS- RONDVAARTEN

$\mu_{\text{eff}} = \mu_0 \sqrt{1 - \frac{1}{\epsilon_r}}$

Mr. and Mrs. Herbert A. Adams, 1000 1/2 Ave. C, New York, N. Y.

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Butcher, Dressed According to Tradition, Carry Fabled Gold

Butcher, Dressed According to Tradition, Carry Fabled Gold

Butcher, Dressed According to Tradition, Carry Fabled Gold



A Market Baker, His Partner "Sister" Pioneers at the Camera

A Market Baker, His Partner "Sister" Pioneers at the Camera

A Market Baker, His Partner "Sister" Pioneers at the Camera





Bookstore on Greenbush, a New York, N.Y., Public Works, Inc.

The bookstore on Greenbush, a New York, N.Y., Public Works, Inc. is a large, multi-story building with a red roof and white trim. It is surrounded by lush greenery and trees. A path leads from the foreground towards the house, and a small figure is visible near the entrance.



Circles of Africa: From Savannah to Desert, Play for Progress

South Africa's new
national stadium is a hub
of activity, with many
events taking place
around it. The stadium
is a symbol of the new
South Africa.

South Africa is a
country with a rich
cultural heritage. It
is a country where
many different cultures
have come together
to create a new
South Africa. The
country is a mix of
different cultures and
languages.

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De Rick's Houses Express Individuality. One Center Slightly Leans Toward the Street
 See A Curved Roadway and a Park Lane Garden on the right. The houses are 1907-1910.



★ Winged and Spiraled Caps Prick on Their Wearers' Home Towns

Some of the most interesting and colorful hats seen in the city were the winged and spiraled caps worn by the women of the city. These hats were made of straw and were decorated with feathers and ribbons. They were worn by the women of the city during the summer months.

✧ A Captivity Art Exhibit Is Spread for Foreign Guests in Richmond

The art exhibit, which is being held at the city hall, is a collection of paintings and drawings by the artists who were captured during the war. The exhibit is open to the public and is a great way to see the art of the war.





Bob Green, Working on Insect Bait, Shows Higgins's Table-top Bait with Protein

Bob Green, working on insect bait, shows Higgins's table-top bait with protein. The bait is a mixture of protein and other ingredients.

Not So much Analyze and War in the War Against the Sea

One of the most interesting and important features of the war in the sea is the fact that the sea is not only a source of food and shelter for the sea creatures, but also a source of food and shelter for the land creatures.

The sea is a vast and mysterious world, and it is one of the most important sources of food and shelter for the sea creatures. The sea is also a source of food and shelter for the land creatures, and it is one of the most important sources of food and shelter for the land creatures.

For the most part, the sea is a world of mystery and wonder. It is a world of many secrets, and it is one of the most important sources of food and shelter for the sea creatures. The sea is also a source of food and shelter for the land creatures, and it is one of the most important sources of food and shelter for the land creatures.

One of the most interesting features of the war in the sea is the fact that the sea is not only a source of food and shelter for the sea creatures, but also a source of food and shelter for the land creatures. The sea is also a source of food and shelter for the land creatures, and it is one of the most important sources of food and shelter for the land creatures.

For the most part, the sea is a world of mystery and wonder. It is a world of many secrets, and it is one of the most important sources of food and shelter for the sea creatures. The sea is also a source of food and shelter for the land creatures, and it is one of the most important sources of food and shelter for the land creatures.

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WESTERN THE NETHERLANDS: HOLLAND, THE HAGUE, MIDS-PRUIT AND VEENHOUTEN

WESTERN THE NETHERLANDS: HOLLAND, THE HAGUE, MIDS-PRUIT AND VEENHOUTEN. The Netherlands is a country of low-lying land, and the capital, Amsterdam, is situated on a low-lying island in the North Sea. The Netherlands is a country of low-lying land, and the capital, Amsterdam, is situated on a low-lying island in the North Sea.



WILLIAM L. BROWN

[illegible]



* In from a Sail on Windy Sneaker Meer,
a Dutch "Rainbow" Ties Up

George South Island is a small, low-lying island in the Pacific Ocean, located in the southern part of the island of New Guinea. It is a part of the Milne Bay Province and is known for its rich biodiversity and traditional culture. The island is home to a small community of people who have lived there for generations, maintaining their traditional way of life. The island's landscape is characterized by lush tropical forests and beautiful beaches. It is a popular destination for tourists who are interested in exploring the natural beauty and cultural heritage of the region.

♣ Schavenengen Wives, Mending Nets
in a Pasture, Take Time for Tea

As a consequence of the above, we have the following theorem. \square



through a so-called Counterpart Fund into which Dutch firms and the normal importers pay in Dutch guilders for what they need.

The Counterpart Fund, operated by the Netherlands Bank under the joint direction of the Economic Cooperation Administration and the Netherlands Government, thus builds up a pool of hundreds of millions of guilders which are used for recovery and reconstruction. Marshall dollars serve a twofold purpose: the prompt purchase of essential dollar goods, and the rehabilitation of the nation.

The projects financed by the fund offer irrefutable proof to offset the continuous attacks upon the Marshall Plan by Europe's Communist organs. All Marshall Plan products (and likewise the U. S. trucks carrying them) bear the United States shield, with stars and stripes, and the words, *For European Recovery. Supplied by the United States of America.*

Holland's trade fairs also publicize in a big and heartening way what America's Marshall Help is accomplishing.

Holland's contribution to her own recovery is immense and in some ways remarkable. Consider one little-known fact. This small country, contrary to our thought of it, is highly industrialized. Thirty percent of the people live in large cities; the Utrecht Fair is a magnet for the businessmen of 70 countries.

Yet since the war there have been very few strikes. Why? Have management and labor suddenly sprouted wings? The answer, a revelation to me when I first heard it, lies in the war itself.

Lessons of War Useful in Peace

Close cooperation was a thing both sides learned in that time of daily danger. It was literally a matter of life and death that they should work together, for they considered that they were carrying on a continuous rear guard action—through sabotage, slowing up, "mistakes" against the enemy within their gates. And when the war was over, both sides said, "If we could work together in war, we can do it in peace."

Parents receive what is called a Children Allowance for all children up to 16 years of age and to 20 years for those still in school.

You need about 15 children, assuming you're an average earner, to double your wages," said a statistician to me. "And this supplement applies to everybody in industry, without exception."

To the president of the Philips concern?" I asked.

"To him, too. He certainly is in industry!"

This concern, called in Dutch *N. V. Philips*

Gloeilampenfabrieken, maker of numerous modern things besides its basic incandescent lights, is one of the world's giants, with some 80,000 employees in many countries, including America. More than a fourth of them work in Eindhoven, the concern's home city (page 749). The huge plant there was repeatedly bombed by the Allies during the war when it was operating under German control.

The care of old people is a remarkable part of Holland's social program, made still more remarkable by the fact that longevity is seriously increasing the problem of national overcrowding. Everywhere in the cities are beautiful developments where old people may live in their own houses, almost or entirely free of rent, looking out upon a central path or park which the tenants themselves keep up.

Tegeelen's Passion Play Draws Thousands

The traveler's Holland, in the unknown corners of the country as well as in the well-known, tour-strewn parts, is, so to speak, in the hands of a firmly knit organization called for short ANVV and for long *Algemene Nederlandse Vereniging van Verenigingen van Toeristen*. It is the Netherlands National Tourist Association to you and me. One finds its representative in every part of Holland.

Activities of this organization are as numerous as its offices. One of them is to publicize a village Passion play of real excellence, produced every five years (1950, 1955, etc.) by the village of Tegeelen, on the right bank of the River Maas in Limburg Province.

About 30 performances are given in the quinquennial years in an open-air theater seating 6,000. Performances rival the more famous ones of Oberammergau.

The worthy sights of Holland, traditionally seen by swinging clockwise around the circle of its towns and Provinces, starting with Rotterdam, are far more varied and interesting than even ambitious folders can reveal.

Rotterdam is a city of sturkest tragedy, as the whole world knows, for it was the scene of Hitler's savage "warning" to those who opposed him. The story of its present resurgence is a classic. The city is coming back, despite an ironical situation, for Rotterdam lacks and must have, for her abundant life, normal trade with that country, Germany, which almost destroyed her.

Despite this lack, the port of Rotterdam, home of the Holland-America Line, is again one of the stimulating sights of Europe.

"How is this recovery possible after such a fearful beating?" I asked myself over and over as I rode the port's complex water ways for hours in a launch (page 774).

The spirit of Holland gives the only answer. This seaport simply refused to roll over, to trade, and die. The Nazis systematically looted it and finally blew up practically all the port equipment; yet already forests of huge cranes are seen against the sky, and there is a vast floating drydock, named *Prins Bernhard*, with a lifting capacity of 30,000 tons.

Here are shipyards of every sort—others are at Amsterdam, Dordrecht, Schiedam, Vlaardingen. I noticed an odd product of one, a fancy white ferry ready to set out for the Bosphorus. On its gleaming paint I read: *Andatolukhuri Istanbul*.

Before the war nearly 15,000 ships a year entered this port, an average of one every 35 minutes. In 1949 there were 11,604, eloquent of a major marvel of recovery.

From Deltshaven, today a mere creek in the Rotterdam port area, the Pilgrim ship *Speedwell* sailed on July 22, 1620 bearing a remarkable cargo of ideas "made in Holland." When the *Speedwell* later proved unseaworthy, some of her passengers made the voyage to the New World in the *Mayflower*.

Ideas "Made in Holland"

To the sojourn in Holland of this group of Pilgrims, and to Dutch settlements in America, we owe in part some of our most cherished institutions. It is worth listing some of these ideas "made in Holland," since few Americans are aware of the debt our way of life owes that country:

- A written constitution (rather than a collection of precedents)
- The organization of the United States Senate (to find a number to be elected from each State)
- The written (printed) ballot
- The right to bear arms (based upon the Civil Service, that he shall not declare war without the consent of Congress)
- Free schools
- Freedom of religion
- Assignment of counsel to defendants unable through poverty, to hire their own counsel
- Regulation of land deeds
- Equal division of estates among surviving children

Leiden, with its mellow but vigorous intellectualism centered in its University, is still an incubator of ideas. Most of them proven intolerable to the Nazis, who closed the University in exasperation early in the war, even while they were making a great show of benevolent friendliness to the Dutch people.

The Hague ('s Gravenhage), with its beach satellite Scheveningen (page 770), is affectionately, if not quite accurately, called a "village" of over half a million inhabitants.

It is not the Capital of the country—Amsterdam has that rather hollow title—but

it is the seat of government and the well-spring of law. Centuries of jealousy made both cities unacceptable until finally the interloper Louis Bonaparte, Napoleon's brother, in 1806 called Amsterdam his royal Capital.

The House of Orange, after Napoleon's downfall, continued to call Amsterdam the Capital, but The Hague was still the royal residence and the meeting place of Parliament.

So it is to this day, though Queen Juliana has let it be known that she will continue to live, as she does now, in her country palace at Soestdijk, near Hilversum. Her inauguration took place, by law, in Amsterdam, but she opens her Parliament in a glittering annual September ceremony in The Hague.

Beauty is an absolute essential, like food and drink, to virtually every Dutch householder, and not least in the war-rattled but still dignified residential city of The Hague.

This statement is not merely pleasant flattery, but an obvious fact of Holland's life. One sees endless evidences of it, but her flowers in the windows be our witnesses. In every part of the country, from Brabant in the south to Groningen in the north, they stand in literal millions to give their testimony.

The revived Hague, no less than lucky unbombed Amsterdam, has music in its soul as well as flowers. It boasts within its Municipal Museum one of the world's greatest collections of musical instruments.

The commercial flower fields of Holland lie mostly in the low, rich lands between The Hague and Amsterdam, especially north of Leiden.

They have often been glowingly described, along with the tulip's strange, romantic history, and still more often photographed, yet nothing can match the reality of the April brilliance of their endless acres of color (pages 757 and 764).

To growers these fields are a serious, worrisome thing, for their livelihood depends upon the successful large-scale international marketing of this beauty (page 748). To further this business, growers have established at Lisse, in the heart of the flower sector, a Laboratory for Bulb Research. This pioneer institution is chiefly concerned with combating plant diseases, so that other countries may have no reason to quarantine such products.

At the Lisse laboratory I was told that quarantine troubles are now sharply declining, and that international cooperation in control of pests is increasing greatly.

It is a curious thing that "broken tulips," with their wonderfully fancy colorings, the type which commanded the most fabulous



The Bike Brigade Charges to Work - Nearly Everybody Pedals in The Hague

Information: The photograph is a reproduction of a painting by J. M. W. Turner, 'Rain, Steam, and Great Railway Bridge', 1844. The painting depicts a busy street scene in London, with many people walking and cycling. The scene is captured from a high angle, looking down the length of the street.



Rotterdam's Ruined Harbor Rebuilt with Marshall Plan Stock Makes Swift Recovery

It is hard to enter the fact that Dutch-owned Rotterdam was the commercial outlet of their "Father's" oil and grain. Some 100,000 tons of grain and 100,000 tons of oil were shipped from Rotterdam to the United States in 1946. The city's harbor was almost completely destroyed by German bombs in 1940. It is now being rebuilt with Marshall Plan stock.

There is a great deal of talk of the "Dutch miracle" but it is not a miracle. It is the result of the fact that the Dutch have now been allowed to be nearly as free as the Americans.

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It is not a miracle. It is the result of the fact that the Dutch have now been allowed to be nearly as free as the Americans. There are several of this type, for instance, the "American flag."

There are several of this type, for instance, the "American flag." There are several of this type, for instance, the "American flag." There are several of this type, for instance, the "American flag."

A black tulip, or black flower, is a flower

is impossible to find in the Netherlands. The Dutch have a very few and they are very rare. We have some very black tulips, but never a black flower.

So the Dutch are not a miracle. It is the result of the fact that the Dutch have now been allowed to be nearly as free as the Americans.

American industry is not a miracle. It is the result of the fact that the Dutch have now been allowed to be nearly as free as the Americans. In short, the New York country, though not the Dutch, is a miracle of industry.

• See "Some Old Pages from the American Flag" in the New York Times, April 1, 1946.

is a sort of Washington. The colors of this mosaics are infinite. Some of them come from the concentric canals (page 756), rimmed by tree-shaded streets of splendid 17th-century buildings; some come from paint on canvas; some from the music of the city's world-famous Concertgebouw orchestra; some from the inner fire of diamonds.

In the summer of 1949 a wonderful Diamond Exhibition was held in the Diamond House of Amsterdam. With throngs of jewel merchants and the merely curious, I wandered about amid millions of dollars' worth of gems for this exhibition was of impressive proportions and displayed many real gems as well as models of all the world's best-known diamonds.

Rows of cutters were busily at work fashioning new jewels for trade. Only a few policemen and presumably some plain-clothes men mixed with the crowds.

The work of the cutters is a wonder of human concentration and skill, for a single false blow with the jeweler's hammer can cost hundreds or thousands of dollars. The largest and the smallest diamonds attracted perhaps the most attention. A model of the celebrated Cullinan, largest ever found, showed exactly how its 3,106 carats of splendor had been cut in 1908 by Joseph Asscher and Company of Amsterdam.

Groningen a Versatile Province

The outer circle of Holland, the Netherlands few people know, is full of evidences of the country's pioneering spirit, its capacity for development.

Consider Groningen Province. In this northern outpost all sorts of manufacturing enterprises are making industrial history.

Near Noordbroek mountains of home-grown straw are being worked and pressed into wall-board for prefabricated home interiors.

At Hangezand a company with a branch in Passaic, New Jersey, is making potato starch that it claims is of use in "every industry except banking."

At Breda I saw an enormous plant for dairy products, one receiving more than 112,000,000 pounds of milk a year from 2,300 farmers who share in the enterprise on a co-operative basis.

Few Americans have heard of Almelo, Hengelo, Enschede, in a far corner of Overijssel Province. But they are big, busy, industrial centers. Throughout this region, as in many parts of Holland, so-called home-building unions are receiving from the Government 50 percent loans for erecting good, low-rent workers' dwellings.

The unions pay 7 percent a year, of which 2 percent is for upkeep, 5 percent for interest and return of principal. The needed sums are collected from the modest rents. In about 50 years the unions own the houses free and clear.

In Almelo I first came upon an interesting experiment in two-way international relations. Almelo and Hutchinson, Kansas, have adopted each other as "contact towns," to the social and business benefit of each. Similarly, Enschede and Memphis, Tennessee, have adopted each other; Nijmegen and Albany, New York; Breukelen and its namesake Brooklyn.

There are many other examples of this mutual-adoption principle. Though at first the practical aids have flowed chiefly from west to east, some advantages are seeping from the Old World to the New.

Apeldoorn is a lovely garden city which has captured a special service and made it big business. Profiting from the remarkably soft water in this whole region, Apeldoorn's 60 public laundries take in a large part of the washing of Holland, serving especially hotels, clubs, and public institutions.

Consider Interated Arnhem and Nijmegen, towns that live together with areas of white crosses and stars of David—British, Canadian, Polish—all around. The sole American cemetery, from which many of the bodies have now been brought home, is at Magraten, near Maastricht.

These martyred towns are coming back. They too are building their futures. The wrecked Rhine bridge at Arnhem, a symbol of British valor, was completely rebuilt by 1949.

The Nijmegen bridge across the Waal was never destroyed, thanks to luck and swift action.

Both of the above towns and this whole battle sector form an enduring symbol also of the Dutch underground, which had a valor all its own. Some of these homes were executed by the Nazis, even as Germany surrendered, in a last shameful gesture of hatred.

The Business of Making Bells

Consider finally, in more cheerful vein, the bell founders of Holland. These makers of carillon bells should not be considered quaint or unimportant. They are contributing to the future of Holland, for chimes are almost as essential as flowers to the spirit of her people.

In November, 1949, a Heiligerlee foundry

* See "Singing Towers of Holland and Belgium," by William Graham Rice, *NATIONAL GEOGRAPHIC MAGAZINE*, March 1945.

Auxiliary Power Plant at the Field

The power plant at the field is a small building, about 100 feet long and 20 feet wide. It is built of brick and has a flat roof. The building is divided into two main sections. The front section is used for the storage of fuel and oil. The back section is used for the engine and generator. The engine is a large, horizontal, four-cylinder diesel engine. It is driven by a belt connected to a generator. The generator produces electricity which is used to power the lights and other equipment in the field. The power plant is located near the entrance to the field. It is accessible by a road which runs along the edge of the field. The power plant is a very important part of the field. Without it, the field would be unable to operate.



Star-shaped Noyden Island Cay, Warburton Island, Deves Its Bristling Forts from a Medical Fortress

Fortifications, Noyden Island, Warburton Island, Deves Its Bristling Forts from a Medical Fortress

75





An Outdoor Museum in Zandvoort Dispenses Lat and run Larders

For the past several years, Zandvoort, Holland, has been an outdoor museum of sorts. A large, curved, white structure, resembling a giant bell, is the centerpiece. It is a museum of sorts, displaying various items, including a large, dark, curved object, possibly a bell or a piece of machinery, in the sky above the structure.

Stripped to New York City, at the office of St. Martin's Episcopal Church, Henry Avenue and Fifth Street, a collection of bells waiting to be sent overseas from the first large bells to be sent overseas from Holland since World War II.

Many of the bells were sent from Apple Ridge, in the Dutch province of Friesland.

To the museum, the bells were sent from the village of Apple Ridge, in the Dutch province of Friesland. The bells were sent from the village of Apple Ridge, in the Dutch province of Friesland. The bells were sent from the village of Apple Ridge, in the Dutch province of Friesland.

He showed me the bells with a light cross over it, and said that he always called in the village priest to bless them before they were sent.

It is important as the cooking, he said, in the village.

He told me of the German war on bells. The Nazis stole hundreds of bells from the

land and many, but, he said, he knew. After the war an enormous cache of them was found and retrieved at Hamburg. Many had been broken to pieces for the furnaces, but the Nazis had never found time to melt all of them down. Many, however, were still intact, including numerous bells from Apple Ridge.

There is a large collection of bells here, the people told me.

But the bells are not the same as the ones that were sent from Apple Ridge.

But never mind the war, said the bell collector. I am sure that these new bells are better than the ones that were sent from Apple Ridge. I am sure that these new bells are better than the ones that were sent from Apple Ridge.

With a great heave he smote the hammer on the bell, as if a hammer in place of the heavy clapper.

"You'll hear it for three full minutes," he said, holding the wood before me to prove it. But he was not to be so sure.

Exploring the World of Gems

By W. F. FOSHAG

Head Curator of Geology, U. S. National Museum

CONSIDER the diamond. Undisputed king of gems is this hard carbon, glittering expensively in settings of gold and platinum. Yet it is a close relative of humble graphite, the black "lead" in a pencil!

But while graphite is so soft and greasy that it is used as a lubricant, its tough, aristocratic cousin can be cut only with another diamond. Through such whims has Nature, during eons of slow alchemy, created the mineral crystals which yield diamonds, emeralds, sapphires, rubies, and a host of other precious and semiprecious stones.

So lavishly has Nature endowed gems with color, luster, elusive lights, and fiery sparkles that men have toiled and struggled to possess them almost since the beginning of recorded time. Gems have figured prominently in famous crimes, romances, and wars.

Rare stones were cut, carved, and polished in Babylonia several thousand years before the birth of Christ. Emerals are mentioned in the *Prae Papyrus*. In it a royal counselor of the 12th Dynasty (1800-1700 B.C.) described the sea-green jewels as less difficult to find than good words. In ancient China the origin of jade carving is lost in antiquity.

Today, as in centuries past, precious stones still are used mainly for personal adornment. In some parts of the world people continue to wear them as amulets and talismans, to ward off evil and bring good luck. Over the years a formidable body of lore has grown about the hits of mineral, globes of shellfish concretion (pearls), and lumps of fossilized resin (amber) which make up the colorful world of gems.

An early Persian legend has it that God, when He created the world, made no "useless" things such as precious stones. But Satan, ever eager to cause trouble and noting that Eve loved the gay flowers in the Garden of Eden, undertook to imitate their brightness and color out of earth. In this way, says the legend, were produced precious stones to excite man's avarice.

Some Jewels Linked with Misfortune

Violent death and ill luck are associated, through superstition or else, with India's Kollipore Diamond, now among the British crown jewels, and the famous Hope Diamond (pages 781, 784, and 791), now owned by a New York dealer.

Since early times man has endowed gems with curative and supernatural powers. Cer-

tain stones, he believed, would preserve him from demons, vampires, and kindred terrors. Others would render him immune to sorcery or confer the powers of witchcraft. With still others, such as a polished sphere of rock crystal, he could foretell the future, review the past, or evoke pictures of events taking place at a distance. Protected by mystic influences of gems, he feared neither plague nor poison.

Virtues in Gems

An almost inexhaustible list of virtues was attributed to gems. Some were supposed to procure the favor of the great; others made their owner amiable, wise, strong, and brave. Some protected him from fire, lightning, and tempests; others from danger and disease.

Good or evil supposedly inherent in gems were also linked with the planetary influence of days of the week. Yellow gems were appropriate for Sunday wear. Monday was the moon day, when all white stones except the diamond were to be worn. Tuesday, the day of Mars, was the time to wear red stones such as garnets and rubies. Thursday, the day of Jupiter, called for amethysts. The emerald was the gem for Friday, the day of Venus. The diamond was reserved for Saturn's day.

A particular stone was regarded as especially potent if worn in relation to the owner's natal month or sign of the zodiac. This belief survives in the still fashionable custom of wearing birthstones, ranging from garnet for January to turquoise for December.

The Apostles were represented symbolically by precious stones: jasper, St. Peter; sapphire, St. Andrew; chalcedony, St. James; emerald, St. John; sardonyx, St. Philip; carnelian, St. Matthew; beryl, St. Thomas; chrysoprase, St. Thaddeus; topaz, St. James the Less; hyacinth (essonite), St. Simon; amethyst, St. Matthias.

Men also saw meanings in gem colors as well as in gems themselves. White was the emblem of light, purity, faith, innocence, joy, and life. Worn by women, white was symbolic of chastity; by a ruler, of humility and integrity. Red signified pure love and wisdom; in another sense it stood for passion, love of evil, and hatred. Blue indicated truth, constancy, and fidelity; yellow could stand for either nobility or inconstancy, to say nothing of jealousy and deceit.

Gems were also supposed to indicate the

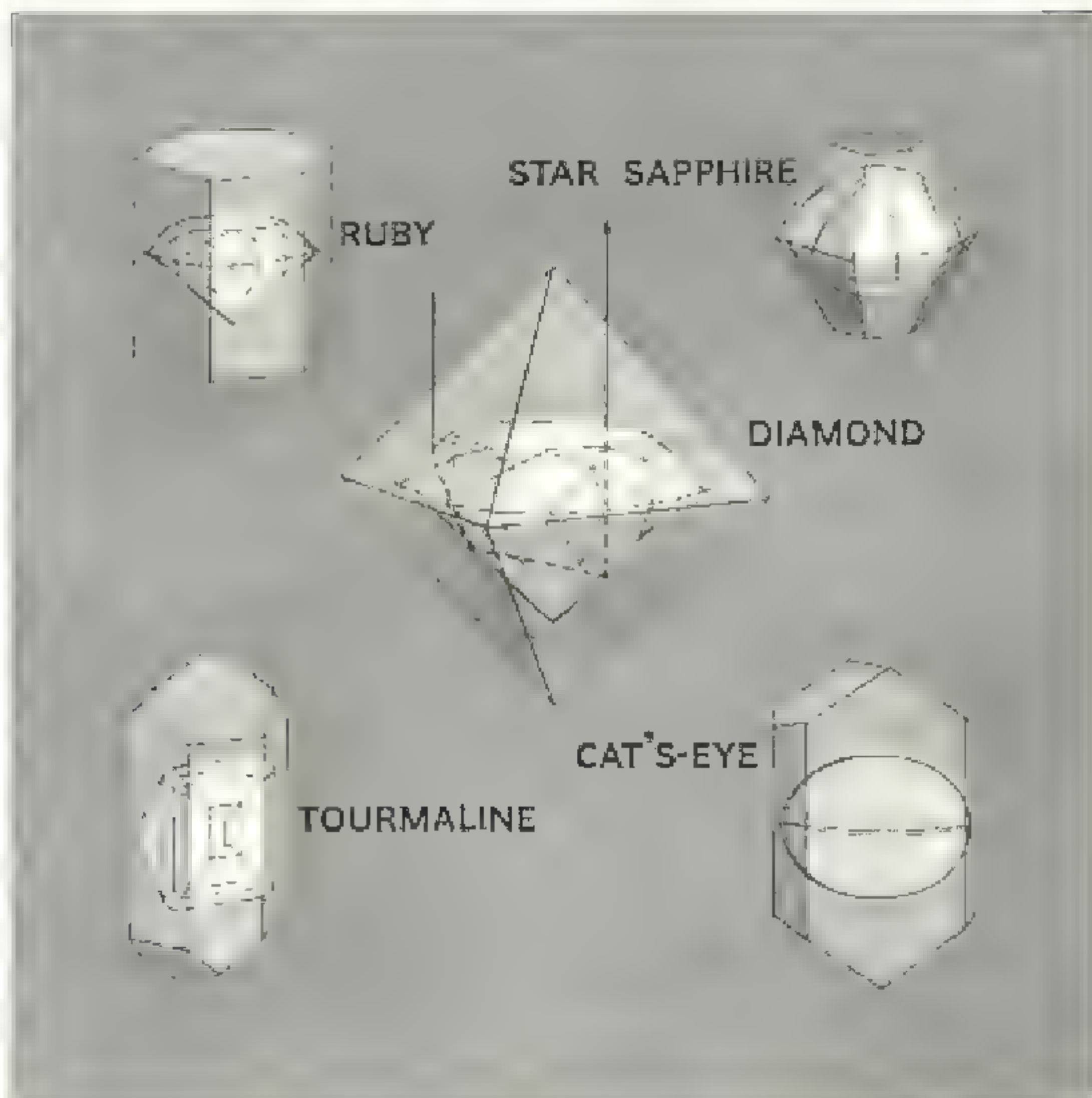


FIGURE 1—JAMES H. ALLEN

Dull Mineral Crystals, When Cut into Geometrical Figures, Yield Glowing Gems

To bring out almost brilliant luster, lapidaries fashion precious stones to take full advantage of light's effects. In a typical cut, diamonds' octahedral crystal is ~~scored~~ along planes indicated by dotted lines. Facets at the polished stone will give off myriad sparkles from light ray following path shown by arrow. Ruby, cut vertically, will be pison-blood red; a transverse cut would yield a brownish-red hue. Multitudes of tiny facets produce fire in the emerald, the garnet, the sapphire, the amethyst, the quartz, the topaz, the tourmaline, and the chrysoberyl, the latter producing cat's-eye, also call for special techniques.

wearer's state of health. If a stone turned dull, opaque, or colorless, watch out for danger or death! Dreaming of gems was a good omen. So was seeing or handling them on the eve of a journey or at certain phases of the moon.

Since no other mineral equals the diamond in hardness, range of color, or luster, ancients also regarded it as most powerful in spiritual influence. As a symbol of constancy, purity, and innocence, it still flashes from engagement rings.

Mary Queen of Scots owned three diamonds

which were believed to be talismans against danger, poison, and "collicke." Unfortunately, none of her gems had the power to ward off the headman's ax!

In Burma the diamond and arsenic are called by the same name, *hson*, on the ground that both are fatal poisons. A similar belief once existed in Europe. Benvenuto Cellini, the swashbuckling 16th-century goldsmith, relates how an enemy hired an apothecary to pulverize a diamond in a salad intended to poison Cellini. With an eye to economy, the apothecary

cary submitted a better one, and thus saved Columbus's life.

As with all true gems, a diamond's color, brilliance, and luster—the qualities which make it valuable—are determined by the atom's structure of the host crystal. Often such characteristics are hidden in the heart of the crystal.

History's largest diamond, the Cullinan, 3,106 carats before cutting, was so unimpressive in the rough that Edward VII remarked, as he held it up to the light, "I should have kicked it aside as a lump of glass if I had seen it in the road."

Cutters Form a Select Group

To bring out hidden beauties is the job of the expert lapidary. With diamonds* and similar stones he does this by grinding and polishing facets, arranged with mathematical precision so as to take full advantage of light's effects. Some stones, such as opals, rubies, and sapphires, *can* be cut and polished *en cabochon* or rounded, without facets (opposite)

The men who cut and polish diamonds form a small, hereditary aristocracy among those who work with precious stones (page 782). Diamond cutters insist upon being called just that: those who work with lesser stones are gem cutters or lapidaries.

Antwerp and Amsterdam have long been the leading diamond-cutting centers. Some stones of high quality are now cut in the United States.

A trade fair in Amsterdam recently exhibited a masterpiece of diamond cutting. The stone was smaller than the head of a pin, and was described as the world's finest diamond—but it was cut with 58 facets!



Famous Gems Grace a Belle of the Ball

By wearing both, Mrs. Thomas Phipps won the privilege of wearing the deep blue Hope Diamond at a New York charity ball. She displayed it above the larger Joeker Diamond. These two diamonds were the most valuable jewels in the world. A picture of the Hope Diamond is on the opposite page.

Pliny remarks that the diamond was known only to kings and princes, and even to few of them. The stones of the ancients came from India—the Grand Mogul, the Koh-i-noor, the Moon of the Mountains, and others of long and bloody history. A few important ancient stones also came from Borneo.

Diamonds in Brazil and South Africa

In 1727 a peasant who had become familiar with rough diamonds in India recognized these stones in the washings for gold in Brazil; and the state of Minas Gerais became an important source during that early period. It has produced the Southern Star, the Patrocinio



Working at Perfection, the Corner Rocks Dancer

For the first time in the history of the world, a woman has been seen in the act of dancing. The dancer is a young woman, and she is dancing in a very graceful and elegant manner. The photograph is a close-up of the dancer's face, and it is very clear that she is looking down at the ground. The image is very grainy and has a high-contrast, black and white quality.



Up on Muller Top Hides a Diamond's Future

The diamond is a very large and brilliant stone, and it is very clear that it is a very valuable one. The photograph is a close-up of the diamond, and it is very clear that it is a very large and brilliant stone. The image is very grainy and has a high-contrast, black and white quality.



1881

Barrow, N.W. 100 ft. (100 ft.) from Barrow's Mines, Source of the Rubber Since the Time of Christ

Barrow, N.W. 100 ft. (100 ft.) from Barrow's Mines, Source of the Rubber Since the Time of Christ. The photograph shows a large, dark, rectangular structure, possibly a mine entrance or a large container, with a complex network of ropes and pulleys attached to it. The structure is set against a light background.

the *Rio de Vilhas*, and other famous stones.*

The most significant discovery of a diamond occurred in 1866 when a Boer farm lad picked up a curiously glittering pebble on the well near Kimberley. From that find sprang a South African industry that has produced more than a billion dollars' worth of diamonds.†

When Nature scattered diamonds over the earth, she did not overlook the United States. Near Marfreesboro, Arkansas, they have been recovered from rock similar to kimberlite, the mother rock of diamonds in South Africa (page 804). More than 200 diamonds have been recovered from gold-mine sluice boxes in California. Other States yielding a few are Virginia, North Carolina, Kentucky, Indiana, Texas, Idaho, and Oregon.

Curious finds of diamonds are those in the glacial drift of the Great Lakes region, particularly in Wisconsin. This leaves little doubt that diamonds were brought south by the glaciers. By following the known glacier paths, the region between the Great Lakes and Hudson Bay is indicated as a potentially rich diamond field.

The most unusual occurrence of diamonds is from a celestial source; small diamonds are sometimes found in meteorites, particularly in the iron from Meteor Crater in Arizona.

During 1949 the world produced two-and-three-quarter tons of diamonds. Not all were fine gems. Those not suitable for cutting serve in drilling and abrasive tools, wire-drawing dies, and in many other industrial uses where extreme hardness is desirable.

Of the diamonds produced in the Belgian Congo, the world's largest source, only about two percent are suitable for gems. The yield of Tanganyika's mines is 80 percent gem-quality stones. Fine, flawless diamonds constitute a small proportion of the gem stones recovered.‡

Colorless Diamonds Most Desirable

Colorless diamonds, sometimes called "blue white," are generally considered most desirable, but colored diamonds, usually pale yellow or smoky brown, are far more common.

Generally, color detracts from a diamond's beauty and lowers its value. But some diamonds are so beautifully colored that they command high prices. These are called "fancy stones." Fine golden yellow, orange, rose and lavender pink, aquamarine to pale sapphire blue, green of various tints, and other desirable shades are included.

Most famous colored stone is the deep-huge 44½-carat Hope Diamond. Finer, and more valuable, is the rich green Dresden Diamond. The Tiffany Diamond (page 791) is a rich

orange yellow. Recently Princess Elizabeth was presented with a deep-pink stone of 54 carats, which was cut into an exquisite brilliant of 23.6 carats.

Before the discovery of America and the exploitation of Africa, the principal source of precious stones was the Orient. Many traders, lured by the possibility of rich traffic in these objects, hazarded the dangers of the journey east to obtain them; some have left behind accounts of their adventures. Best known is Marco Polo, who left Venice about 1271 and made his way to the court of Kublai Khan§

Jean Baptiste Tavernier, a French geographer who went to India in 1658 to traffic in precious stones brought back a huge blue diamond, which he sold, together with 26 others, to Louis XIV, le Grand Monarque, in 1668. The Tavernier Blue was recut and made part of the French crown jewels. They were stolen in 1792, but the Tavernier was not among the few gems subsequently restored. Later it reappeared, much reduced in size, as the Hope Diamond.

Many of the ancient Indian diamonds, such as the Koh-i-noor, have had strange histories. According to legend, the Koh-i-noor was discovered some 5,000 years ago in the Godavari River, but the first authentic record is in the memoirs of Sultan Baker, who wrote in 1326: "Bikernajit, a Hindu, who was Raja of Gwalior, had governed that country for upward of a hundred years.

"In the battle in which Ibrahim was defeated, Bikernajit was sent to hell. When Humayun arrived, Bikernajit's people attempted to escape, but were taken by the parties which Humayun had placed upon the watch and put into custody.

"Of their own free will they presented to Humayun a tribute consisting of a quantity of jewels and precious stones. Among these was one famous diamond, which had been acquired by Sultan Ala-ed-din. It is so valuable that a judge of diamonds valued it at half the daily expenses of the whole world."

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Brazil's Land of Mirrors," October, 1948; and "Brazil's Potent Weapons," January, 1944, both by W. Robert Moore.

† See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Congo's That Gold and Diamonds Bight" by W. Robert Moore, December 1947; "Under the South African Moon," by Melville Chase, April, 1941; and "Diamond Mines of South Africa," by Gardner F. Wilkins, June 1936.

‡ See "Britain Tackles the East African Bush," by W. Robert Moore, NATIONAL GEOGRAPHIC MAGAZINE, March, 1953.

§ See "World's Greatest Overland Explorer" by Eric Hilgard, NATIONAL GEOGRAPHIC MAGAZINE, November 1919.



Carved and Polished Turquoise Bands

Indians a Thousand Years Ago Hand Polished and Flint Drilled These 2.5-4 Turquoise Bands

Excavated by the Peabody Museum, New Haven, Conn., from the site of a prehistoric Indian village in the Peabody Museum, New Haven, Conn., a number of turquoise bands, some of which are now in the collection of the Peabody Museum, New Haven, Conn., are shown in the photograph.

The turquoise bands of the prehistoric Indians of the Peabody Museum, New Haven, Conn., are shown in the photograph. The bands are made of turquoise, a mineral which is found in the Peabody Museum, New Haven, Conn., and is used for jewelry. The bands are made of turquoise, a mineral which is found in the Peabody Museum, New Haven, Conn., and is used for jewelry.

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Two Gems from Same Mineral

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a pure and fiery red, but if cut in the opposite direction, a brownish or purplish red may result.

Frequently the corundum crystal contains many minute inclusions that have arranged themselves in the hexagonal pattern of the host crystal. These inclusions will sometimes reflect light to yield a six-rayed star. The stone is fashioned by the lapidary to bring out and intensify this pattern. The result is a star sapphire or star ruby (page 799).

A 12-rayed star ruby from Ceylon recently was exhibited in the Morgan Gem Hall of the American Museum of Natural History, New York.

Pure-red rubies weighing 10 carats or more are rare indeed; sapphires may exceed 100 carats or more in weight. Some found in Ceylon were reported to have weighed one and two pounds.

Almost since the dawn of history, Burma has been the principal source of fine rubies. The producing area is about Mogoke (page 783).

The Burmese mines produce other gems as well, particularly spinels, or balas rubies (page 790), and sapphires. The rubies are of the finest quality, rich pigeon-blood red in color, while the sapphires are somewhat inferior. In the mines of Thailand, however, the reverse is true.

Star Sapphires from Ceylon

Ceylon is rich in sapphires and other precious stones. It is the only source of the rare orange pajarita-stone, and it also yields an abundance of pink, yellow, brown, and violet stones, as well as large star sapphires.

In the United States, Montana has produced small, fine, steel-blue stones from mines at Yogo Gulch in Judith Basin County, and pale stones of many colors from gravel bars in the Missouri River.

Many a large "ruby" mentioned by early writers has proved, on later examination, to be a balas ruby, a form of the mineral spinel. Such is the Black Prince Ruby now in the front of the British Crown of State. It was given to the Black Prince by Pedro the Cruel in 1367, and was subsequently worn by Henry V upon his helmet-crown at the Battle of Agincourt.

The famous "ruby" which Gustavus III of Sweden gave to Catherine the Great once was considered the finest in Europe. Now it is known to be rubellite, a red variety of tourmaline.

Another large balas ruby, which masqueraded as true ruby and is now among the British crown jewels, once adorned the saddle of

Ranjit Singh. It weighs 352 carats and bears the inscriptions of the famous Moguls Jahangir, Shah Jahan, Aurangzeb, and Mohammed Shah.

Few indeed are the true rubies of fine quality exceeding 25 carats in weight.

Blue sapphires, on the other hand, are not uncommon. A stone weighing 951 carats is said to have belonged to the kings of Burma. Another, of 210 carats, is included in the Russian state treasure. Among the finest star stones are the Star of India, a 563-carat star sapphire, and the De Long star ruby of 100 carats, now in the American Museum of Natural History (page 799).

Rubies and sapphires are won entirely from gravel deposits or from the residual soil, where they have been released from their mother rock by weathering. The earth or gravel is brought to the surface through pits sunk to the gem-bearing layers, the material washed by hand, and gems picked from the concentrate. Months of labor may pass before an important stone is found.

Science Produces Synthetic Gems

For centuries man has imitated the precious stones in cheaper materials. With the advent of modern science he has attempted to reproduce the natural stone artificially. In the case of the ruby and sapphire he has been eminently successful. Synthetic rubies and sapphires, indistinguishable from the natural stones except by means of their minute flaws, are now being produced by the millions of carats annually (page 810).

Much of the synthetic material finds its way into industry, but large quantities are used in jewelry. Strangely enough, this enormous production of artificial gems has not influenced the value of the natural gem.

Even the striking effect of the star stones can be reproduced in startling perfection. A buyer of gems need not be unduly concerned about this invasion of the gem market by the artificial product, however, for a competent jeweler can distinguish the natural from the man-made gem.

Beryl, a silicate of beryllium and aluminum, is not an uncommon stone, but is rarely found in the color and clarity requisite for a precious gem. The ordinary mineral is the important one of the metal beryllium. Almost always it is found in crystals, sometimes weighing 10 tons or more. The common form is that of a six-sided prism.

Like corundum, the color variations of this mineral have received distinct gem names. Fine green stones, colored by chromium, are emeralds. Sea-green or blue varieties are



Looking Through a Red Gemstone, the Mineralogist Identifies a Gem by the Light It Bends

Some of the most interesting and useful tools in a geologist's toolbox are the tools of light. A mineralogist, for example, can identify a mineral by the way it bends light. The mineralogist in the photo is looking through a red gemstone mounted in a ring. The gemstone is a red garnet, and the mineralogist is identifying it by the way it bends light. The light is bent in a way that is characteristic of garnet, and the mineralogist can identify the gemstone by the way it bends light.


$$|b_{-1} \dots b_{-n}\rangle = |b_{-n}\rangle \otimes |b_{-n+1}\rangle \otimes \dots \otimes |b_{-1}\rangle, \quad |b_0 \dots b_n\rangle = |b_0\rangle \otimes |b_1\rangle \otimes \dots \otimes |b_n\rangle,$$

γ





• Flashing Yellow Spangles Surround a Green Peridot: Red Spindles to Right

Such an arrangement of stones is a classic for a jewelry designer. The green peridot is the central stone, surrounded by a ring of smaller, round, yellow gemstones. To the right, a large, dark, irregularly shaped stone is set in a gold-colored bezel, surrounded by a ring of smaller, round, red gemstones. The background is a light-colored, textured surface.

• Topaz, Swarming with Reflected Light, Looks Like Shanty Soldiers

Topaz is a gemstone that is known for its clarity and its ability to reflect light. In this arrangement, the topaz is surrounded by a ring of smaller, round, yellow gemstones. To the right, a large, dark, irregularly shaped stone is set in a gold-colored bezel, surrounded by a ring of smaller, round, red gemstones. The background is a light-colored, textured surface.



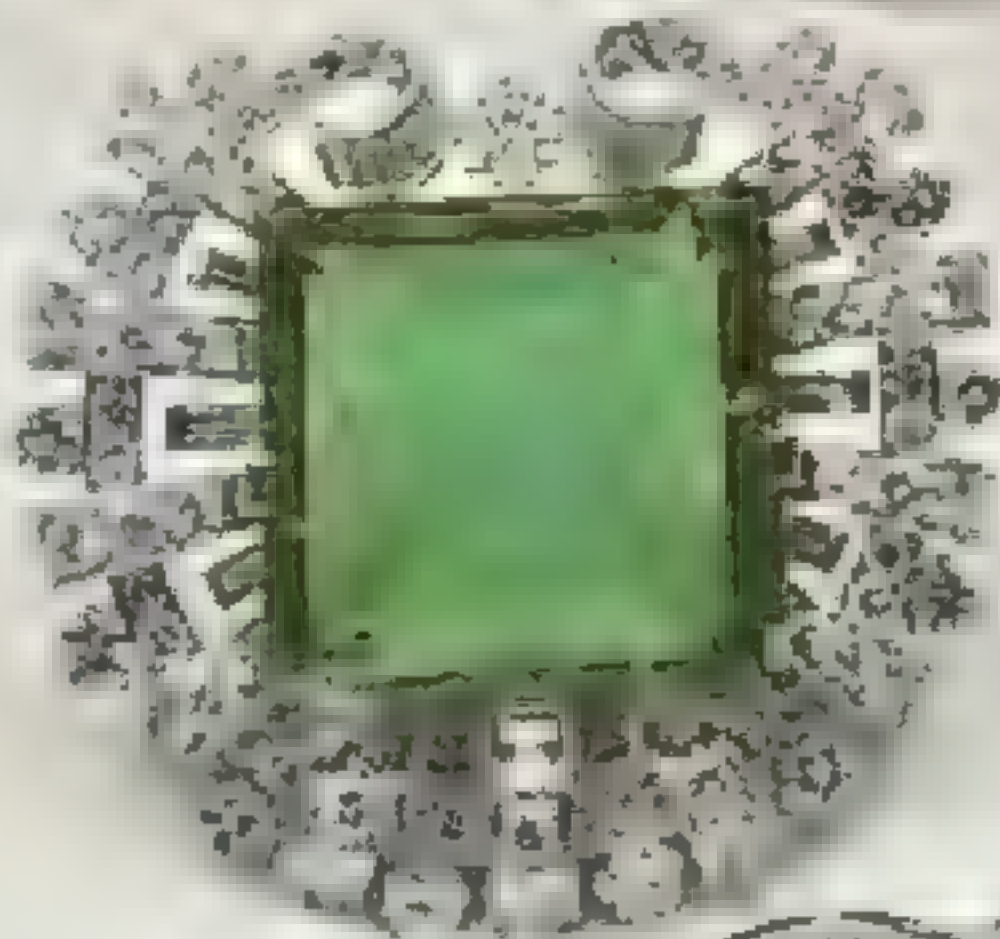


* Tragic Tales Enfold World-famous Star of the East and Hope Diamonds

Tragic tales enfold the two most famous diamonds in the world, the Star of the East and the Hope diamond. The Star of the East was a large, round diamond that was found in India in 1870. It was named after the star of the East, which is a star that is said to have appeared in the sky in 1870. The Hope diamond is a large, blue diamond that was found in France in 1862. It was named after the Earl of Hope, who was the first owner of the diamond. The diamond is said to be cursed, and many people who have owned it have died or gone mad.

* Perfect Indian Diamond Glitters Beside Rare Emerald Brooch

There is a perfect Indian diamond that is said to be the largest of its kind in the world. It is a large, round diamond that was found in India in 1870. It was named after the star of the East, which is a star that is said to have appeared in the sky in 1870. The diamond is said to be cursed, and many people who have owned it have died or gone mad. The diamond is said to be the largest of its kind in the world, and it is said to be the most valuable diamond in the world.





Woman's Ghostly Figure Jar Was Cut from a Single Piece of Ivory

Found in the Flagstaff in 1900 and by the Museum of the University of Arizona, it is a fine example of the art of the Navaho Indians. The jar is made of a single piece of ivory and is a fine example of the art of the Navaho Indians. It is a fine example of the art of the Navaho Indians.

Colors of the Spectral Dancer in Opal's Radiant Hues

The opal is a gemstone of great beauty and value. It is a fine example of the art of the Navaho Indians. The opal is a fine example of the art of the Navaho Indians. It is a fine example of the art of the Navaho Indians.





Ever Hear of a Glass Garnet? Many Facts Come on This Fancy Gem

Garnet is a very common gemstone, and is found in many colors. It is a very hard stone, and is very durable. It is a very popular gemstone, and is often used in jewelry. It is a very beautiful stone, and is often used in jewelry. It is a very hard stone, and is very durable. It is a very popular gemstone, and is often used in jewelry. It is a very beautiful stone, and is often used in jewelry.

Of All Gems, Charles Zircos Has the Most Diamonds in France

Charles Zircos is a very famous diamond merchant, and is known for his large collection of diamonds. He is a very successful businessman, and is known for his large collection of diamonds. He is a very famous diamond merchant, and is known for his large collection of diamonds. He is a very successful businessman, and is known for his large collection of diamonds.





★ **Raspberry Red in Artificial Light,
Alexandrine Glows Green by Day**

The Alexandrine, a small, round, translucent object, is shown in two different colors. In artificial light, it glows a deep red color. In natural light, it glows a bright green color. The object is held between the fingers of a hand, and the background is a dark blue color.

★ **Pussy Eyes Her Namesake,
the Oriental Cat's-eye**

The Pussy Eyes, a small, round, translucent object, is shown in two different colors. In artificial light, it glows a deep red color. In natural light, it glows a bright green color. The object is held between the fingers of a hand, and the background is a dark blue color.





Jewels Worth a Queen **Glowing Rubies Sparkling Sapphires**

A collection of fine jewelry pieces, including a large red heart-shaped stone, several smaller red stones, a green stone, a blue stone, a yellow stone, a pink stone, a dark blue stone, and a small ring with a red stone.

Table Glams Gold Permits for Wear **of Rare Star-spun new Gems**

The collection of fine jewelry pieces, including a large red heart-shaped stone, several smaller red stones, a green stone, a blue stone, a yellow stone, a pink stone, a dark blue stone, and a small ring with a red stone.





From Golden Arthur, a Fossil Master, Delt Fingers Tishon, a Scapery Lion

Scapery Lion, a fossil master, is a master of the art of carving. He has carved many of the most famous fossils in the world. He has carved the Scapery Lion, a fossil master, and the Scapery Lion, a fossil master. He has carved the Scapery Lion, a fossil master, and the Scapery Lion, a fossil master. He has carved the Scapery Lion, a fossil master, and the Scapery Lion, a fossil master.

To Give an Emerald a Glowing Finish, Polish It on a Whirling Disc

St. John, a master of the art of polishing, is a master of the art of polishing. He has polished many of the most famous emeralds in the world. He has polished the Emerald, a master of the art of polishing, and the Emerald, a master of the art of polishing. He has polished the Emerald, a master of the art of polishing, and the Emerald, a master of the art of polishing.



called aquamarine. There are also pink or rose and golden-yellow varieties, and a rare form, colored by uranium, is known as heliodor.

The earliest source of emeralds was the Gebel Zabara in southeastern Egypt, near the shores of the Red Sea. The mines appear to have been worked until the 16th century, when they were completely lost, to be rediscovered in 1816.

Emeralds for Queen of Spain

When the Spaniards came to the New World, they found the natives in possession of emeralds. Pizarro took some from the Incas and sent them to the Queen of Spain. The first indication of their source came in 1537 when Gonzalo Jiménez de Quesada was given nine beautiful green stones presented by the inhabitants of the town of Gacheta, during the Spanish invasion and conquest of Colombia.

Although the Indians carefully guarded the location of the mines, "by sheer luck," states the early chronicles, "they found a youngster, probably of little cunning, who told them that the emerald mines were to be found at Somontano." In 1558 the more famous mines at Muzo, 65 miles from Bogotá, were discovered by the Spanish soldier Juan Penabazán.

Stones looted from the natives or mined from the mines were shipped to Spain and then sold in Paris. The finer stones were kept in Europe, the rest sent to India, Persia, and Turkey. There is hardly an Oriental ruler who does not possess some of these emeralds, even to the present day.

What is undoubtedly one of the largest of the Colombian emeralds is the unguent jar made by Dionysio Miseroni, famous Milanese gem engraver, in the Vienna collections (page 794). Carved from a single hexagonal rich green crystal, it weighs 2,680 carats, or nearly a pound and a half.*

A similar large emerald of curious history is the Emperor Jahangir cup, also carved from a single Colombian crystal. Jahangir, "Conqueror of the World," was addicted to wine. When his favorite wife, Nur Jahan, one day found him seated with his companions, drinking from enormous cups of gold, she chided him for using a cup no better than those of his subjects.

Upon his oath that he would drink from no other, Nur Jahan presented him with the emerald cup. When the vessels were placed before him he noted the difference in the capacity of the two vessels.

The cup is now in the Cellulose Collection of the National Museum.

Emeralds and aquamarines, from the same

mineral, differ only in color. The intense green of emeralds is due to minute quantities of chromium, which aquamarines lack.

Aquamarines of a rich sea blue command the highest prices, but chartreuse greens and other shades are equally handsome. The aquamarine, unlike the emerald, must be flawless and limpid. Because of their paler color, large stones are much more effective than small ones; the vogue is for stones of large size, sometimes 100 carats or more.

Fortunately, of all precious stones the aquamarine is found in the largest flawless crystals. One weighing 220 pounds was found near the Brazilian village of Matamoras in 1910 (page 797).

This was undoubtedly the largest gem ever discovered. Its finder encountered difficulty in transporting the huge crystal by canoe to the coast, en route to the gem-cutting center of Idar in Germany. It yielded more than 200,000 carats in superb stones.

The color of this crystal was a green or yellow green, not the most desirable shade. It was discovered, however, that by cautious heating of the stones the color could be changed to a rich sea blue of unusual limpidity, thereby greatly increasing the value of the gems derived from it. It is now customary to heat green aquamarines to turn them clear blue.

Aquamarine's mother rock is pegmatite. The deep tropical weathering of the rocks in Brazil releases the crystals from their native res, leaving them to be easily recovered from the rotten stone in which they are embedded, or exposing them to the rain wash, which carries them down the hill slopes into creek beds.

Madagascar is another important source of aquamarine.

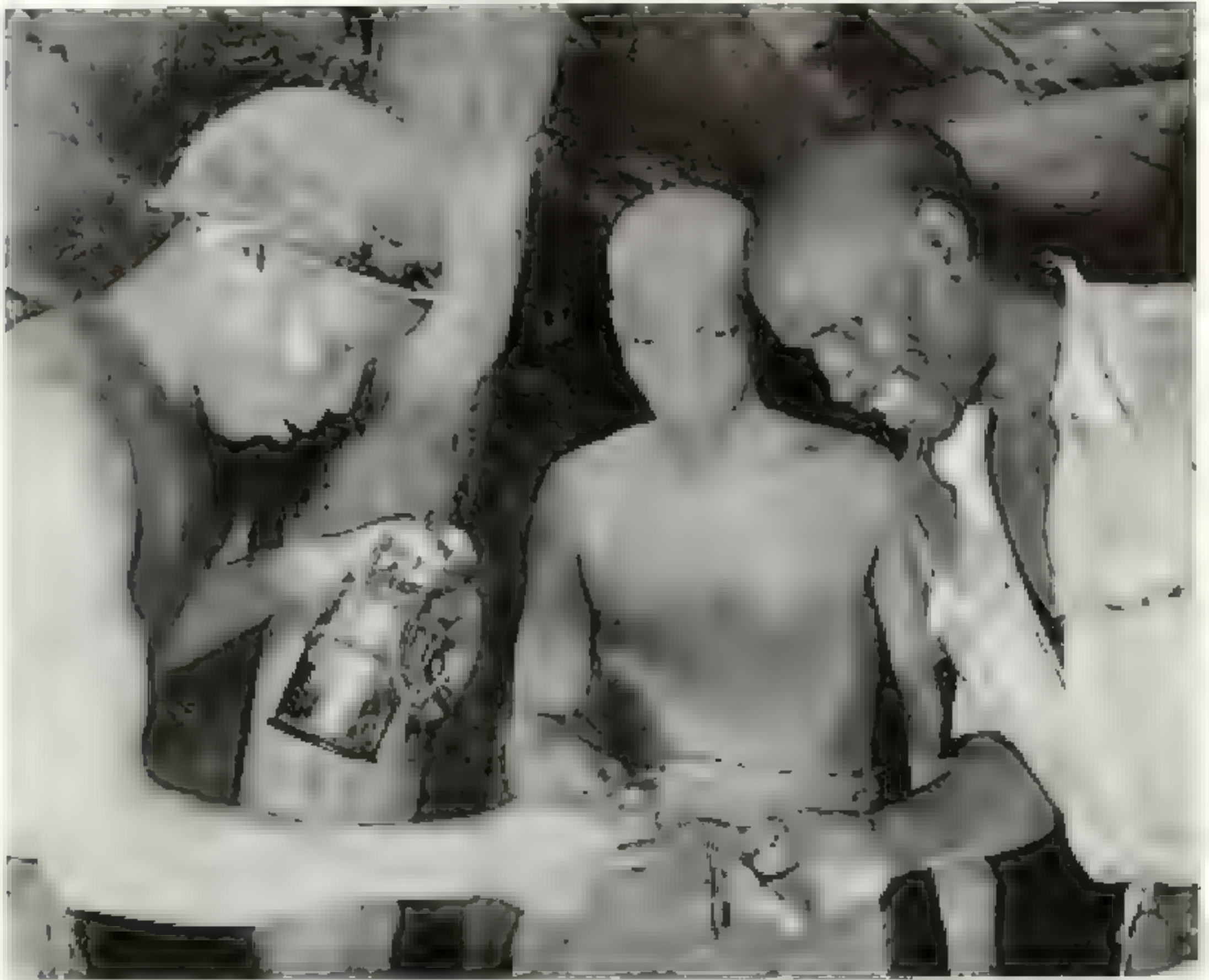
Rarer than the aquamarine is the pink beryl, sometimes called morganite. This beryl differs from other varieties in that it contains a rare alkali metal, cesium, in its chemical composition. The most desirable color of this stone is deep rose pink.

Pearls Included Among Gems

The pearl, according to the mineralogist's definition, is not a mineral, but it has always been considered among the gems (pages 798-799). Pearls are the secreted body fluids produced by mollusks as a protection against irritating inclusions or parasites that invade the body of the animal.

Oysters, clams, conch, abalone, and many others produce "pearls." The huge Tridacna,

* See "The Vienna Treasures and Their Collections," by John Walker, NATIONAL GEOGRAPHIC MAGAZINE, June, 1950.



L. H. HARRIS, JR., AND TWO OTHERS.

"Look, More a Diamond!" His Find May Mean \$500, the Maximum Reward

THE CORAL REEF, the natural home of the pearl, is a treasure trove. When the sea is calm, the coral is a beautiful sight. It is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove.

of a pearl, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove.

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two pearls are expensive, but a natural or artificial pearl is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove.

Opals "Most Valuable of All"

There is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove. The coral is a natural wonder, and it is a treasure trove.

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colors glittering together mixed in an incredible way."

Today many lovers of gems, admiring the strikingly beautiful Mexican and Australian opals, unknown to Pliny, still consider this gem the most beautiful of all (page 794).

Opal is one of the few minerals that have never crystallized. One might call it a rock jelly. In chemical composition it is similar to quartz, the commonest of all solid minerals.

The oldest known opal locality, from which the Romans probably obtained their gems, is Carrwathen, in Hungary (now Cservencs, Czechoslovakia). These mines no longer yield stones. Hungarian opals show a mosaic of red, blue, and green colors of changing hues in a white base.

Desert regions of Queensland, New South Wales, and South Australia produce fine stones. Gems from Lightning Ridge, New South Wales, have a unique splendor: in a body of dark-grey or black stone, myriads of colored lights dance with each slight movement of the gem. Unfortunately the mines are almost exhausted of rich material.

Among the curious forms of natural opal from Australia are the petrified forms of extinct life, sand and clam shells, and even the bones of the long extinct swimming reptile, *Mosasaurus*, changed to colorful gems.

The opals of Mexico are translucent, with innumerable small but brilliant flashes of color penetrating the body of the stone. In some the base is honey yellow to orange brown, a rare and unusual color for opal.

The finest, and the rarest, are the "hoviz-nandes" (from the Spanish *hojiz*, to drizzle) with colored darts flashing through a pellucid matrix. The effect is similar to the tiny rainbows of light observable when the sun shines through showers on the high plateau of Mexico.

Opals from Petrified Forests

One of the most unusual gem deposits in the world is the opalized forests of Virgin Valley, northwestern Nevada. Even evergreen cones, in flashing opal, are found among the petrified branches of wood buried in the ash of an ancient volcano. But the Nevada stones have a fatal weakness; as they dry out, multitudes of small cracks form which eventually weaken the gems and destroy their beauty.

The largest known opal was found in the Hungarian mines in 1770 and weighs 595 grams, or one pound and five ounces. It is in the Imperial Museum at Vienna.

One only slightly smaller, weighing 533 grams, is a magnificent black mass with broad flashes of green, blue, red, and yellow, now in

the National Museum. It is from Virgin Valley and represents the outer bark section of an opalized tree trunk.

There has been much confusion regarding topaz. Presumably the name came from Topazes, an island in the Red Sea, and the ancient gem was the peridot of modern times. Today the mineral commonly offered as topaz is a much less valuable yellow variety of quartz called citrine.

To the mineralogist, however, topaz can mean only one material, a silicate of aluminum. This is a fairly widespread mineral, frequently associated with aquamarine, which it sometimes closely resembles.

Topaz is often yellow, but colorless or blue crystals are more abundant (page 740).

The finest yellow stones come from mines near Ouro Preto, in Minas Geraes. Natural rose-colored stones are rare but can be produced by carefully heating the yellow stones. The heat-colored stones are marketed as pink topaz.

Light-blue stones are not uncommon and are sometimes sold as aquamarines. Many fine examples came from the region about Murzikka, in the Ural, but are now found more abundantly and in larger size in Brazil. Some huge crystals were recently found in an aquamarine mine, from which the National Museum received a perfectly formed crystal of 157 pounds.

American sources, while widespread, have little commercial importance. Fine blue crystals have been found in San Diego County, California, and collectors' pieces have come from Colorado, Texas, and Maine. Small topaz crystals occur in the steam cavities of a lava bed near Desert, Utah; though small, they frequently show fine color—until exposure to sunlight fades them.

According to the ancients, topaz not only cooled boiling water, but anger too; it cured insanity, asthma, and rheumatism; imparted strength and good digestion; and averted sudden death—surely something worth owning!

Chrysoberyl Yields Three Gems

Chrysoberyl is a rare and unusual mineral yielding three distinct types of gem stone. It is a combination of alumina and beryllia. In hardness it approaches the sapphire. Simple chrysoberyl, as found in Brazil and Ceylon, shows a fine lemon-yellow to chartreuse-green color, the latter a rare and particularly handsome lot.

But the fame of the chrysoberyl rests chiefly upon two unusual varieties: orange-red alexandrite (page 798).

The cat's-eye is a translucent chrysoberyl of honey to greenish-yellow color crowded with minute parallel inclusions, so that a strong *cat's-eye catraction* (page 180) shows a white line of silky sheen moving over the surface. Its resemblance to the feline eye gives it its name.

The alexandrite, green in daylight and red in artificial light, was first discovered in the emerald mine of Tskovain in the Ural on the 14th Year Alexander II attained his majority.

Only small alexandrites have been produced in Russia; Ceylon has yielded much larger ones. A very rare stone, combining the effects of both the cat's-eye and the alexandrite, is known as alexandrite cat's-eye.

Minerally, the peridot (page 790) is the silicate of magnesium and iron called olivine. It is uncultivated the gem known to the ancients as *topazos*. Olivine, common in certain types of lava known as basalt, is also found in certain kinds of meteorites.

In spite of peridot's abundance, material suitable for fine gems is rare. Its only commercial source is small St. John's Island in the Red Sea. Typical crystals from here have been found in excavations in Alexandria, Egypt, proving that these deposits were worked in very early times.

Small stones of fire color are found in ant-hills in northern Arizona. The stones weather out of an ancient lava, and the bright grains are among the materials brought to the surface by ants.

The largest known peridot once adorned the figure of a saint in Austria. It is now in the National Museum.

Two Varieties of Jade

The term *jade* (page 795) was derived from the Spanish *piedra de yada* ("stone of the side") in allusion to its supposed power to relieve pains in the side, and referred to the green stones brought by the Spanish conquerors from Mexico. A stone of similar appearance and with similar mystical properties was known as *lapis nephriticus* ("stone of the kidney").*

These two stones have been so thoroughly confused that both varieties are now mentioned under the term "jade." Mineralogical examination has shown that one, named *jadeite*, is a silicate of soda and alumina, the so-called *nephrite*, is a silicate of lime and magnesia. The two minerals can be readily distinguished, for their only common characteristic is toughness and susceptibility to high polish.

Both *nephrite* and *jadeite* in pure form are white. *Nephrite* may contain varying amounts of iron to yield a pale yellowish-green to

dark-green stone. *Jadeite* frequently contains chromium, resulting in a material of fine apple to emerald green. Boulders of *jadeite* that have lain buried for centuries in red tropical clays imbibe the color to become a rich iron red. A slight amount of manganese in white *jadeite* induces a delicate lavender tint.

Jade was perhaps the most important stone known to the ancients. Superbly fashioned objects of this material have been found in both China and Middle America in tombs and similar remains as early as the 16th century B. C. The high artistic quality of these objects indicates a long period in the use of *jade* antedating even this remote period.

Jade chips have also been recovered from the remains of the early Swiss lake dwellers.

Early Middle Americans Used Jade

The use of *jade* by the Chinese is well known, but the fact that the early Middle Americans also used this material, perhaps as early as the Chinese, is not generally realized.

Fossils of the Olmec civilization of Mexico and Central America have yielded numerous pieces of wonderfully advanced artistic conception.

The later Maya and Aztec cultures also prized *jade* highly. Two pieces of *jade* given to Cortes by Montezuma were valued by the Aztecs at two loads of gold. Only the gods and the nobles were permitted to wear this valuable material.

The finest color for *jade* is a rich emerald green, the so-called imperial *jade*. The Chinese liken this color to that of the leathers of the Chinese kingfisher and call it *fei tsung*; the Aztecs compared it to the plumage of the quetzal and called it *quetzal chalcachuilt*.

Strings of carefully matched beads of imperial *jade* have sold for \$100,000.

The earliest Chinese *jade* was from an unknown source. In the Chou dynasty (about 1122 to 249 B. C.) *nephrite* from Khotan, in Turkistan, came into wide use. The only commercial source of *jadeite* at the present is the mines of Upper Burma, which started production in the 19th century.

The *carnelian* (page 794) is one of the most complex and variable of mineral species. Its color ranges from white, through all shades of red, yellow, green, and blue to black. It becomes translucent when heated. It is not attacked by acids and is not dissolved by alkalis.

* *Journal of the National Geographic Magazine*, Vol. 1, No. 1, "Green Stone Turquoise," September, 1900; "Anciently Buried Masterpieces of Art," June, 1901; September, 1911, both by Matthew W. Stirling; "Jade," by S. E. Lister, January, 1912, and "Finding Jewels of Jade in a Mexican Tomb," November, 1912, by Matthew W. Stirling and Marion Stirling.



Jade Ornaments, Relics of a Bygone People, Emerge from a Mexican Cleft

As Mexico's jade industry grows, the country's ancient jade carvers are being rediscovered. While the jade industry has been a part of the country's history for centuries, it was only in the 19th century that the jade industry was rediscovered. The jade industry was rediscovered by a group of people who were looking for jade in the mountains of Mexico. They found jade in the mountains of Mexico and began to carve it into ornaments. The jade industry has been a part of the country's history for centuries, but it was only in the 19th century that it was rediscovered.

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ite, andradite, and uvarovite. The usual colors are red, brown, and yellow, but white, green, and black forms are also found.

The common species is almandine, an iron aluminum silicate, which in gem form includes the carbuncle. A purplish-red form, found only in Cowee Valley, North Carolina, is known as rhodolite. A magnesian variety frequently seen is pyrope, a smoldering fiery-red stone, whose principal source is Bohemia, for which reason it is sometimes called "Bohemian garnet."

Spessartite, a manganese aluminum silicate, yields fine golden-brown gems. Grossularite, the calcium form of garnet, supplies the essence, or "cinnamon stone" of Ceylon.

A variety of andradite, called demantoid, has a grass-green to emerald-green color. Its name refers to its high luster, resembling that of the diamond. This rare and beautiful stone is found only in the Ural Mountains.

Garnet is a very common mineral, usually found in regular 12-sided crystals, called dodecahedrons. But crystals sufficiently clear and flawless for gem use are rare.

India produces most almandine garnet. Fine pyrope is raised in Bohemia, and is found in fair quantities in Arizona and New Mexico.

Zircon, Brilliant and Popular

Zircon (page 763) comes in a variety of colors. Its brilliance approaches that of the diamond. It is a silicate of zirconium, the most common of the minerals of this somewhat rare element. Natural colors vary from dark cherry red, through brown, golden brown, to yellow. Small colorless stones found near Matara (Matara), in Ceylon, are called "Matara diamonds."

About 20 years ago many beautiful blue zircons began to appear on the market. Naturally blue zircons of a very pale tint were previously known as a rare color variety of this gem. Considerable secrecy enshrouded this new appearance until it developed that the fine color resulted from heating the zircons found in Annam, Indochina.

The rough pebbles are placed in a crucible and heated over charcoal stoves. In a similar manner, many of the zircon pebbles can be transformed into colorless gems. Both the blue and the colorless have become popular stones in the gem trade.

A rare variety of zircon shows a fine apple-green color.

The principal source of gem zircon is Annam, where it is mined as colored crystals from stream beds. Many stones are also found in Ceylon. Fine stones are found with sapphire at Anakie, Queensland.

The very rare sphene (page 760), a silicate of titanium and calcium, is known mineralogically as titanite. Its color ranges from a fine canary yellow to green and brown. It is quite soft and therefore little suited to ring stones, but can be used effectively in necklaces and brooches.

It owes its merit to its extreme brilliance, and it shows a fire surpassing that of the diamond. A properly cut sphene shows numerous flashes of red and blue light, approaching an opal in the intensity of its colors.

There is no regular source for this precious stone. Occasionally a cuttable crystal is found in the mineral fissures of the Alps. A few good stones have been found in the old iron mines near Brewster, New York. The few stones that appear upon the market are quickly snapped up by connoisseurs.

A synthetic material, named titanin, exceeds even the sphene in brilliance. A large production and market are anticipated for this new member of the family of synthetic gems.

Turquoise is "Turkey stone," the blue gem that reached Europe from the Persian mines through Turkey. It is one of the few important gems in whose formation heat and pressure were not involved, for it is formed by the simple medium of water percolating through rocks near the surface of the earth. Chemically, it is a phosphate of copper and aluminum.

Like jade and amber, it had a special interest for early races. Some of the earliest turquoise mining was on the Sinai Peninsula, and for millenniums Persia has been an important source of the finest quality material. Turquoise was an active commodity in the markets of early Egypt. The aborigines of America also prized it highly (page 753). An ancient as well as a present source is near Cerrillos, New Mexico.

Persia furnishes the finest quality, of a robin's-egg blue. Greenish blue stones are inferior. When traversed by delicate veinlets of brown or black, it is called "spider-web" turquoise. New Mexico, Arizona, and Nevada are the principal sources in the United States.

Rock Crystal in Demand

Quartz is the most common of minerals. Everyone is familiar with it in the form of sand. Chemically it is pure silica. When crystallized it forms six-sided prisms terminated by a three- or six-sided pyramid. When these crystals are clear, they are known as rock crystal.

Clear and flawless rock crystal is in great demand for commercial purposes, for it has a peculiar but very useful characteristic. It is



Amber's Insect Prisoner May Be Millions of Years Old

Mineral resembling amber is actually an organic material, the fossilized resin of a dead tree. Sometimes it preserves leaves, flowers, feathers, insects, and parts of an animal. Germany's Baltic coast mines produce most of the world's amber. Storms with sand deposits ashore (page 88).

pieces of rock — and it is produced in many colors, including red, yellow, and green. All of these natural colors are controlled by water-thin plates cut from rock crystals. These plates, known as "plates," make it useful for many other types of apparatus.

Cut and polished into faceted gems, rock crystal becomes the familiar rhinestone. One of the most famous pieces of rock crystal is a polished sphere for crystal gazing, used in divination (page 792).

The art of divination, using a polished piece of rock crystal, became popular during the Middle Ages. It is now known that a crystal ball is not a magical object. It will darken or temporarily paralyze the optic nerve. The crystals seem to disappear from the eyes. In this condition an imaginative person may perceive visions.

Among the Orientals, rock-crystal spheres were popular as symbols of purity and as a dwelling place for the "sacred winds."

The ancient believed that rock crystal is a pure, unaged, and everlasting stone. Pliny states that it is used only when the snow melts, and it is used only when the snow melts, and it is used only when the snow melts. The ancient believed that rock crystal is a pure, unaged, and everlasting stone. Pliny states that it is used only when the snow melts, and it is used only when the snow melts.

A form of quartz known as "rock crystal"

and its color is the purple, red, and green. A yellow variety is called "topaz." Since natural citrine is rare, the commercial product is obtained by heating amethyst. Smoky-gray or brown rock crystals are known as carnegian stone.

Quartz also occurs abundantly in a massive, uncrystallized form. A variety of this, in pure varieties of rich colors are included under the term "jasper." The impurities, usually some form of iron, give it yellow, green, and various mottled patterns to the mass. A green variety of jasper is called "stone." This is speckled with small red spots, and is called "stone."

Jasper may be found in any part of the world. Utah Mountains jasper was used extensively in the hard-stone carvings of many of the master artists of China.

A form of quartz known as "rock crystal" is called "topaz." Jasper and rock crystal is chalcidite. It is crystalline, with a waxy translucent body and is best known in its banded form, agate.

A common form of chalcidite is called "topaz." Jasper and rock crystal is chalcidite. It is crystalline, with a waxy translucent body and is best known in its banded form, agate. When colored apple green by nickel, it is called "topaz."



Out of a 1000-K. Fansee Comes a Synthetic Sapphire Rivaling Nature's

1. The above information is being provided to you for your information only. It is not intended to be used for any other purpose. The information is being provided to you for your information only. It is not intended to be used for any other purpose.

of a large, colorful, and massive in-
terpretation of the world that will be
not only a new landscape, but a new
landscape.

Italy is the most important producer of malachite, chrysoprase, and citrine, as well as quartz. Because of the tremendous increase in the number of amateur hobbyists, the gold-colored chalcedony is now the most important gem production in the United States.

Arthur Noyes and the Minerals

Amber is, strictly speaking, not a mineral, but a fossilized resin. It is a natural resin which, through millions of years of age, has taken on a mineral character.

In ancient times, amber was considered a precious
stone. According to their legends, the crown
of the young prince Elst was his favorite. In the
end the cunning Huns who had by a trick,
captured him, and were taking him to prison, in
which he died of tears shed drops of amber.
His crown was buried on the shore, and an im-
portant source of amber has been the masses
washed up by the waves of the Baltic Sea.

The ancient search for amber stimulated exploration, seeking for new lands and trade routes across the then known world to the

distant to the coast. The Phoenician amber merchants approached it by sea. Later the Romans transported it overland to Venice or Marseille.

[illegible][illegible]

Algae is produced in Hama and is much used in China, but the principal source is still the Hainan coast. It is used in large quantities, particularly after storms, when masses of seaweed from the coast are being carried ashore with it.

Since the amber was originally collected in the underlying rocks, formalin fixation with associated machinery and associated plant has been introduced.

Large-scale Western Europe Map First in New National Geographic Series

NTO ENEMY is likely to overcome its role as a strategic pivot of Western Europe, which is still the strategic pivot of the world."

When General of the Army Omar N. Bradley wrote these words a few weeks ago, National Geographic Society map makers were just completing three months' work on master drawings for a new large-scale map of Western Europe.

Large lithographic presses now have turned out 1,432,000 copies of this large ten-color wall map for distribution to members of The Society throughout the world as a supplement to this December number of their NATIONAL GEOGRAPHIC MAGAZINE.

"Today our frontiers lie in common with Europeans' in the heart of Europe," said General Bradley, Chairman of the United States Joint Chiefs of Staff, in the same historic declaration.

"Our foreign policy and our military policy in 1950," he stated further, "call for the defense of Western Europe from the start, not for a liberation of our friends after they have been overrun . . ."

From ancient towns to modern airports and occupation zones, the Western Europe map shows our kinship in history and culture with this old and populous part of the world, and its strategic importance in the age of jet planes and radio.

Three-map Series to Cover All Europe

The new map is the first of three presenting all Europe on a scale that permits showing even the smaller towns. Planned for later issues are a new map of Eastern Europe which will cover the Balkan countries, and Northern Europe which will map Scandinavia and the nations of the Baltic.

Each of the future Europe sheets will extend well into Russia, mapping the border area between the Soviet Union and its satellites.

For quick location of the thousands of place names, The Society will issue an index to each map. The index to the 8,683 names on the new map of Western Europe will soon be available.*

All three maps are being drawn on the same projection and scale, so that the sheets may be fitted together to make a large, detailed map of Europe about four and a half feet wide and more than five feet high. With at least 20,000 place names, it will give the most detailed coverage of Europe ever provided by the National Geographic Society.

The scale of 1:2,500,000, or 39.46 miles to the inch, was chosen for these sectional maps because it is small enough to permit showing an extensive area on each sheet and yet big enough to include most important places.

Even in high-speed modern airplanes, travelers can scan their map and recognize many features below them before the plane flies off it and onto another sheet. The Western Europe map covers an area about 1,100 by 1,400 miles in extent.

In well-populated areas, the new map of Western Europe averages from four to six names to the inch. In an hour's automobile drive of about forty miles, the user will find that along his route an average of four to half a dozen or more places are located and named.

Ideal Guide for Pilgrims to Europe

Up-to-date compilation of railway routes, airports, and waterways makes this map ideal for the hundreds of thousands of travelers who now visit Western Europe each year. In 1949 these pilgrims from the United States alone numbered 203,429, compared to 113,485 in a typical prewar year, 1937. For 1950 the figures are running higher still.

Dollar-day countries are glad of their guests. In England the income from visitors is greater than that from the huge textile industry. In France during the tourist season this income amounts to half a million dollars a day.

Except for Scandinavia, Italy, Greece, and Turkey—to be included in later maps—the area shown includes most of Europe where travelers from the West are welcome, not barred as by Communist regimes.

Besides France and Great Britain north to Glasgow and Edinburgh, the 29-by-37 1/4-inch sheet includes all of Ireland, Portugal, Spain, Switzerland, and the "Benelux Countries"—Belgium, the Netherlands, and Luxembourg. Eastward it extends to uneasy, divided Rumania and its uncertain Czechoslovakia. Denmark south of Copenhagen, and Italy west of Bologna are included.

The jutting peninsula mapped as Western Europe, together with the British Isles, measures only about 747,000 square miles; yet this "strategic pivot of the world" is the home of

* Members may obtain additional copies of the new map of Western Europe (and of all standard maps published by The Society) by writing to the National Geographic Society, Washington 6, D. C. Prices in United States and Possessions, 50¢ each on paper, \$1.00 on linen. Index, 25¢. Outside United States (all Possessions), 75¢ on paper, \$1.25 on linen. Index, 50¢. All remittances payable in U. S. funds. Postage prepaid.

225,000,000 people—many of whom have relatives scattered from Canada to Patagonia, from Bermuda to Australia and New Zealand. Though only about three times the size of Texas, Western Europe contains some 31 times as many inhabitants.

From this comparatively small area came many of the explorers, peoples, institutions, ideas, and skills that built up in Europe and the Americas what we know as Western Civilization.

In the heart of Europe lies pivotal Germany, which twice in the past century has suddenly attacked its neighbors and twice has not overcome in catastrophic world wars. The map shows it broken into zones of occupation—Western zones are marked by the Stars and Stripes, Union Jack, and Tricolor; the eastern zone by Soviet Russia's red flag.

As the split between East and West has widened, a dozen nations—Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States—have committed themselves to resist any new aggression.

Under the North Atlantic Treaty signed in Washington on April 4, 1949, these 12 nations affirm that they are "determined to safeguard the freedom, common heritage and civilization of their peoples, founded on the principles of democracy, individual liberty and the rule of law." They declare that an attack on any one of them, or their possessions, in Europe or North America, will be considered an attack upon all and will be resisted jointly.

Travelers See Results of ECA Billions

Meanwhile, war-shattered Western Europe is fighting its way out of the frightful wreckage of World War II with the aid of the United States under the Economic Cooperation Act of 1948, better known as the Marshall Plan.

At the halfway point in the Marshall Plan, on April 3, 1950, Gen. George C. Marshall, author of the Plan, said "a near miracle" has been accomplished. But, he added, "We must work for, and expect, another miracle."

Traveling almost anywhere within the limits of this map, except in Spain which is not a member of the Organization for European Economic Cooperation, the American visitor sees the evidences of ECA assistance. Productive farms and healthy livestock herds; fertilizers, seeds, animal feed, and technical advice from the United States. Some 600,000 tractors, three times the 1948 number, till Western Europe's soil.

In the area of the map lie some fifty major industrial projects assisted by ECA. These are chiefly devoted to the production of basic materials such as steel and other mineral products, electrical energy, and oil refinery equipment, but they cover a wide range of other industries.

Two plants to produce streptomycin are being built in France. Portugal is getting assistance on a large pulp and paper mill. In the Netherlands, ECA is assisting in the IJssel Meer (Zuider Zee) reclamation project, which is planned to recover 550,000 acres from the sea (page 749). France and Italy are getting new air liners. ECA dollars are going into steel plants such as those at Hayange and Elange, in Lorraine, and near Port Talbot in Wales.

The Marshall Plan means for Europeans millions of jobs, pay envelopes, and the feeling of confidence and security that goes with them.

Western European nations themselves are uniting for the common good. Examples of such cooperation are the Council of Europe, with a consultative assembly meeting at Strasbourg near the Rhine, and more recently the French Schuman Plan for pooling coal and steel with Germany.

Saar Now in Union with France

The map shows the new provisional State of the Saar. In 1947 that potent coal-mining and industrial district voted overwhelmingly to separate itself from Germany and to join in economic union with France. The Saar State is independent in internal affairs but depends upon France for protection and handling of foreign relations.

The Saar's new status and a few slight changes in Germany's western borders are subject to confirmation by a peace treaty with Germany, still unwritten more than five years after the war.

Boundary changes so small they are hardly perceptible are reflected in the new border between Germany and the Netherlands. There are 19 of these minor corrections, totaling about 25½ square miles with a population of 9,200. The changes straighten out certain border anomalies which have plagued transportation lines, water control, and customs enforcement. Other minor changes in the borders of France, Belgium, and Luxembourg with Germany are incorporated in the new Western Europe map.

In the words of the English poet William Cowper, who died a century and a half ago:

What a life, but a map of life,
Its distractions, and its vast concerns!

J. W. Westcott, Postman for the Great Lakes

By Cy La Tour

With Illustrations from Photographs by the Author

IN THE black of night, the little cruiser *J. W. Westcott* plowed her way down the Detroit River. Her big Diesel engines droned at full throttle to make headway through a heavy chop and gale. A 33-mile-an-hour wind had whipped the usually calm river into a virtual inland sea.

The small boat plowed ahead, burying her nose into big waves that sent the murky water spilling over the bow and windshield. She was on her way to "rendezvous" with a Great Lakes freighter. Her mission: to deliver the mail.

Standing beside Tom May, a veteran riverman, at the wheel of the sturdy mail boat, I suddenly picked up the long, dark lines of a ship. The looming freighter slid through the water, a white wave cutting back along her black hull.

High above the water, the ship's lights blinked through the darkness as we rushed against her side. We pushed with all our Diesel might to keep pace with the big vessel, which held fast to its regular speed.

Forty feet above us stood a crewman silhouetted against the faint light. He lowered a mail bucket, which skittered down over the side of the freighter and swung into the cabin of the mail boat. In a matter of seconds he hauled it up again. The freighter plunged ahead as the *Westcott* turned to set its course for shore.

The contact we made with the "laker" was strictly routine and is repeated many times through every 24 hours of every day from mid-April to mid-December.

"Cut of the World" for Weeks at a Time

Crewmen who ply the Great Lakes often have no contact with the outside world for several weeks at a time. To these thousands of men and their landside families, the 40-foot power cruiser, on whose white cabin roof appear the words, "U. S. Mail," means a lot. To them their "floating post office" is perhaps the most important boat anywhere in the world!

It is more vitally important to shipowners and ship captains. For them the *Westcott* relays confidential information and orders via telegraph and mail. Cargoes and destinations for the Great Lakes fleet are frequently top secret.

When such is the case, an owner wires instructions to one of his ships through the

privately owned J. W. Westcott Company, a marine reporting agency, on Detroit's First Street. Such messages are sealed in envelopes and delivered with the next mail. Without this service, Great Lakes shipping would be seriously handicapped.

Written orders have preference over ship-to-shore telephone, which can cause much misunderstanding and delay when reception is bad. Then, too, there is always the possibility of a competitive freighter picking up a telephone call and racing to get to port first. So Great Lakes ship operators have come to depend largely on the tiny *Westcott* for safe and sure delivery of their orders.

Sometimes it is virtually impossible for the mail boat to contact all ships passing through the Detroit River from either Lake Huron or Lake Erie. When thick fog settles over the area, many ships are forced to drop anchor and wait for light before continuing on their courses.

When this happens, a backlog of as many as 16 freighters will sail through the river. The *Westcott* reaches as many as 100.

Time a Vital Factor

With a comparatively short operations season, time is the vital factor in the highly competitive Great Lakes shipping industry. If a freighter laden with valuable cargo to be delivered on stated schedule were to stop or even slacken its speed to wait for mail delivery, thousands of dollars might be lost.

Statistics give an inkling of the great importance of this industry to our Nation's economy. In 1949, some 157 million tons of iron ore, grain, coal, and limestone and more than 93 million barrels of oil were transported in ships of American registry alone. Actually, more tonnage is handled by these carriers than the combined total tonnage that passes through the Panama and Suez Canals.

During the eight-month period when the Detroit River is ice-free and open to ships, the *Westcott* makes some 22,000 mail deliveries.

In 1949, it handled 914,195 pieces of mail, not only letters but parcel post packages as well. Detroit postal zone 22 is exclusively for such marine mail.

Detroit river men like to reminisce about the way this unique mail service was born. Capt. John Ward Westcott, for whom the present boat is named, was the youngest captain on the lakes when he retired 70 years ago. He

wanted to work out an idea to save time in Great Lakes shipping and make himself some money.

He bought a rowboat and would row out to meet cargo barges as they were towed past the city by tugs. He delivered mail to crewmen for 25 cents per letter. Then he started taking orders for small stores and fresh food. He worked the clock around, grabbing sleep between "tows." Gradually Westcott built up his own marine reporting agency.

Early in this century, tow barges gave way to steam-propelled vessels. From then on, various small power craft cruised the Detroit River mail route.

Two years ago high operating costs led to a Government attempt to abandon the mail run. But shippers protested so vigorously to Washington that private companies were invited to bid for the contract. The job went to the firm Captain Westcott founded many years ago.

Mail Is Just a Side Line

For several years the *Westcott* didn't handle mail. Other power cruisers did the job on contract for the Government. At that time the Post Office Department had a ruling that boats carrying U. S. mail could transport nothing else. And the Westcott Company has always performed a multitude of chores for the lakemen.

When this ruling was relaxed, the *Westcott* again started delivering mail. "Mail is actually a side line with us," says J. W. Westcott, present head of the firm and eldest son of its founder.

One of the *Westcott's* most important other services is coffee supply. In the main office is a large blackboard chart which lists the kind of coffee used on each ship that passes through the Detroit River. In addition to the brand name, the board also lists the type of grind, whether drip or percolator. "We order coffee, and the little *Westcott* makes the delivery."

Another service the company offers is laundry and dry-cleaning pickup and return. "They put it off dirty; we have it done up and get it back," says Westcott. The boat also makes regular deliveries for a local marine supply store and serves as paper boy by getting Detroit and other newspapers to ship crews every day. Machinery parts and sailors' baggage are two other items the *Westcott* handles.

The cruiser even embarks or debarks an occasional passenger. Even this is done without a freighter cutting down its speed. Just as the mail is put aboard, the *Westcott* brushes alongside a passing ship and keeps pace with

it. Then a crew member on the larger ship lowers a ladder, the passenger grabs it and hoists himself aboard as the mail boat turns around and heads to shore. A few times the *Westcott* has had to fish a passenger who "missed the boat" out of the water.

These days crew members often get notice to report for Army physical examinations. The *Westcott* not only delivers the summons from the draft board, via mail, but also gets the prospective draftee to shore.

When a crewman gets word that he is to report for an examination, he notifies the draft board in his home town to send his papers to Detroit. When this is done, the crewman boards himself to the deck of the *Westcott* the next time his ship passes through the river. He goes ashore, then rejoins his freighter or tanker the next time it reaches Detroit.

The Westcott Company maintains two branch offices—one at Port Huron, north of Detroit, and another at the lower end of the river. When a freighter passes one of these, a crew member often shuts an order for coffee or supplies ashore. The branch office telephones the order to the main office in Detroit, and the goods are delivered when the ship passes the city.

Should the *Westcott* miss delivering an important message to a ship from its owner, the main office phones one of the branch offices, both of which operate their own boats and can make special deliveries.

The Westcott establishment works 24 hours a day. Three crews of two men each put in eight hour shifts on the *Westcott*. The office is staffed by three persons during the day and one at night. The Port Huron station has three men who work in the office and three on boat duty. The lower river branch, which operates in Canadian waters, employs three Canadians.

After making another run, we put in at the pier just outside the Detroit River Post Office, where the *Westcott* was loaded with more bags and bundles of mail. Dawn was coming up. The wind had died down and the river was calm again after churning all night long.

There have been times when the weather was so rough the *Westcott* couldn't battle through to passing freighters. But the little boat usually makes it.

I recalled the inscription from Herodotus I had seen on the New York Post Office Building: "Neither sun nor rain nor heat nor gloom of night stays these couriers from the swift completion of their appointed rounds."

I looked over the *Westcott* and thought this motto could well be paraphrased to include "fog, gales, high seas, and freezing spray."



Denver's Busy Tugboat Fleet Delivers Mail on the River in a Great Lakes Ore Carrier

The tugboat fleet of the Denver Tugboat Company is shown here in the foreground, with the Great Lakes Ore Carrier in the background. The tugboat is a small, dark-colored vessel with a white funnel, and the ore carrier is a large, light-colored ship with a dark hull. The scene is set on a river with a city skyline in the background.



★ Marine Post Office Clerks Sort 4 Million Pieces a Year

It takes a year to pack the letters in the Marine Post Office. Some of the letters are 100 years old. The letters are sorted by date and then by the name of the person to whom they are addressed. The letters are then packed in boxes and sent to the post office.

▼ Mailboat Owner and Pilot Keep Watch on River Traffic

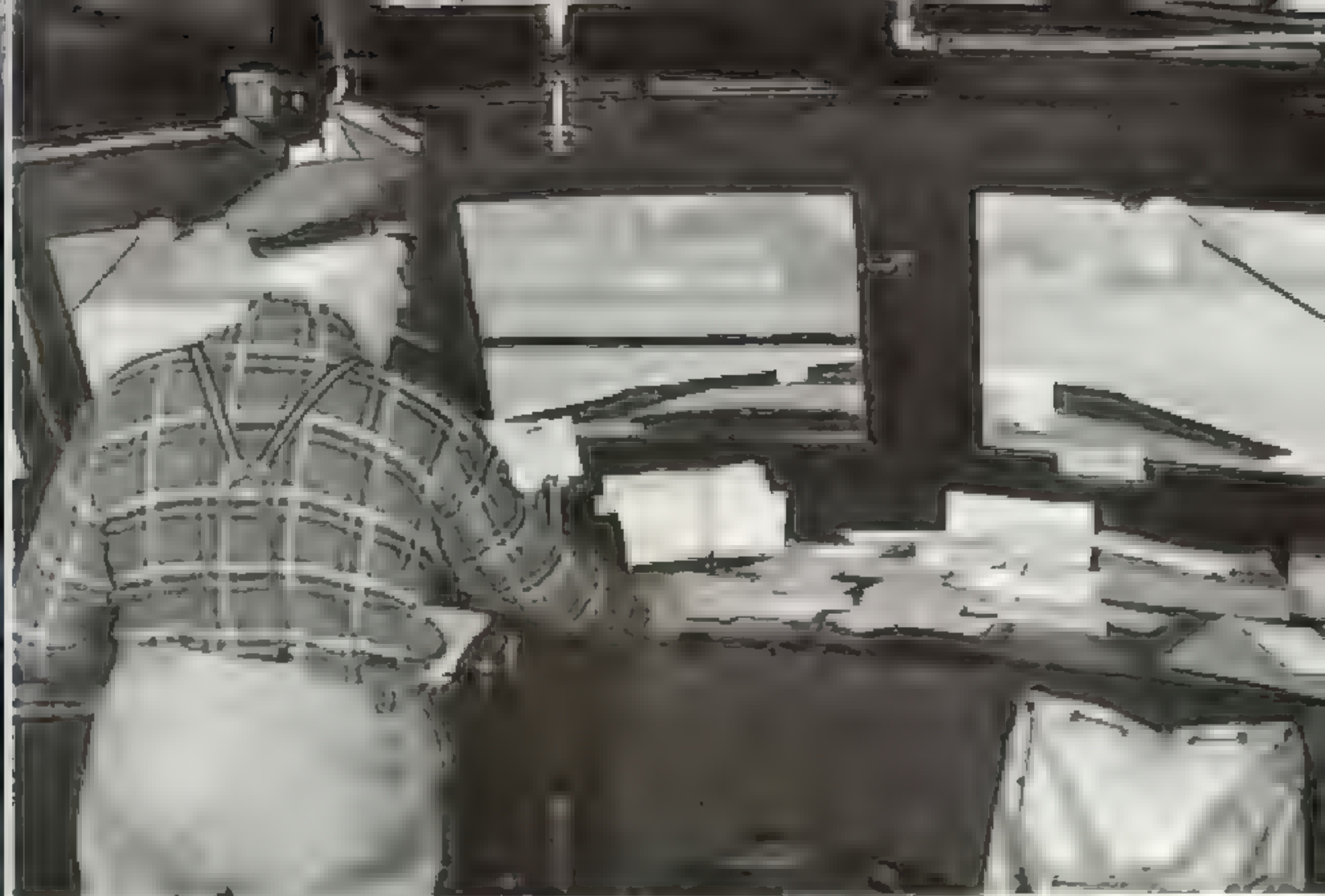
For hours at a time, the owner and pilot of the mailboat keep watch on the river traffic. They are looking for any boats that may be in the river and are also looking for any boats that may be in the river. The mailboat is a small boat and is used to deliver mail to the river.





Pittsburgh bound, 15,754 Tons of Mesabi Iron Ore Goes Past the Mail Boat

Ship, the 15,754-ton iron ore carrier, the George Eastman, is seen here leaving the mouth of the river. The ship is moving northward on the river. The ship is moving northward on the river. The ship is moving northward on the river.



Pilot-Postman Has a Wacky Route

When a pilot-postman takes a delivery route, he is not only a pilot but also a postman. The route is a long one, starting from the airport and ending at the post office. The pilot-postman has to fly over the city and deliver the mail to the post office. The route is a long one, starting from the airport and ending at the post office. The pilot-postman has to fly over the city and deliver the mail to the post office.

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"Haul Away!" A Package from Home Goes Up the Riveted Hull

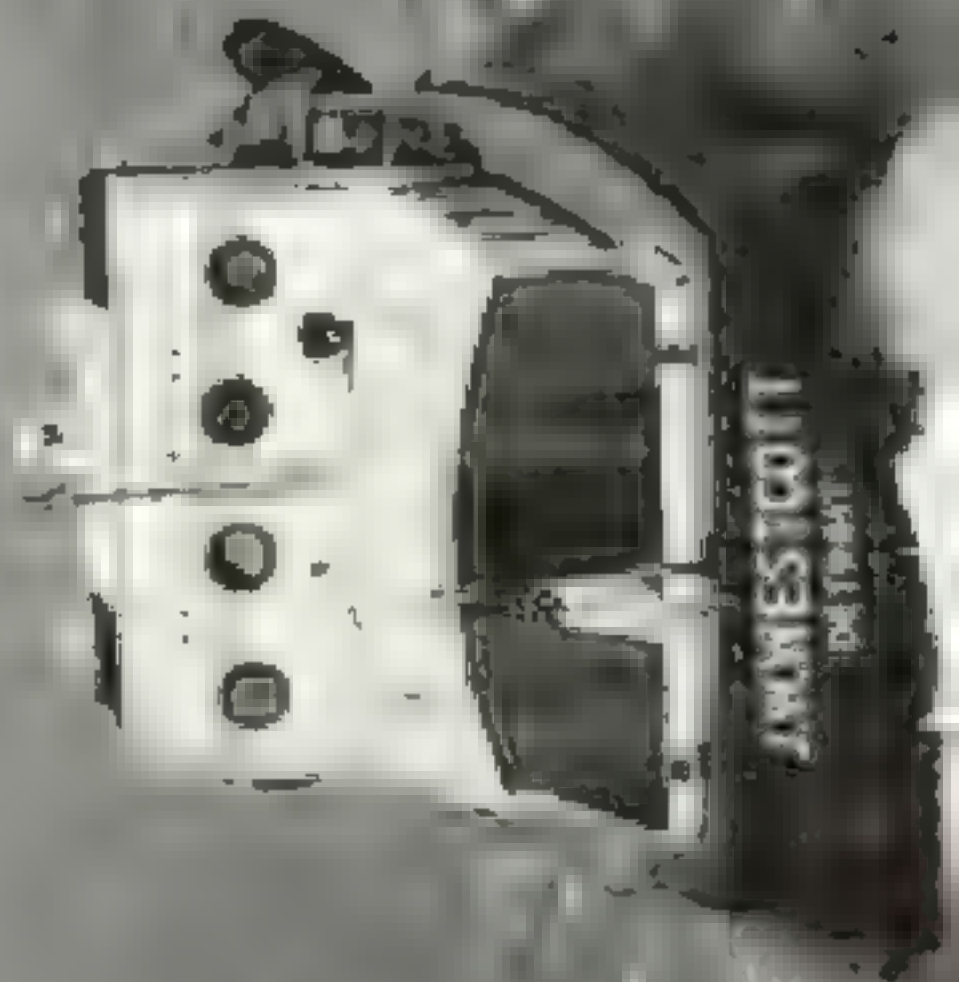
St. Ignace, Mich. (U.P.)—The St. Ignace, Mich. has supplied Great Lakes seamen with laundry, tobacco, and other necessities. A package from home goes up the riveted hull.

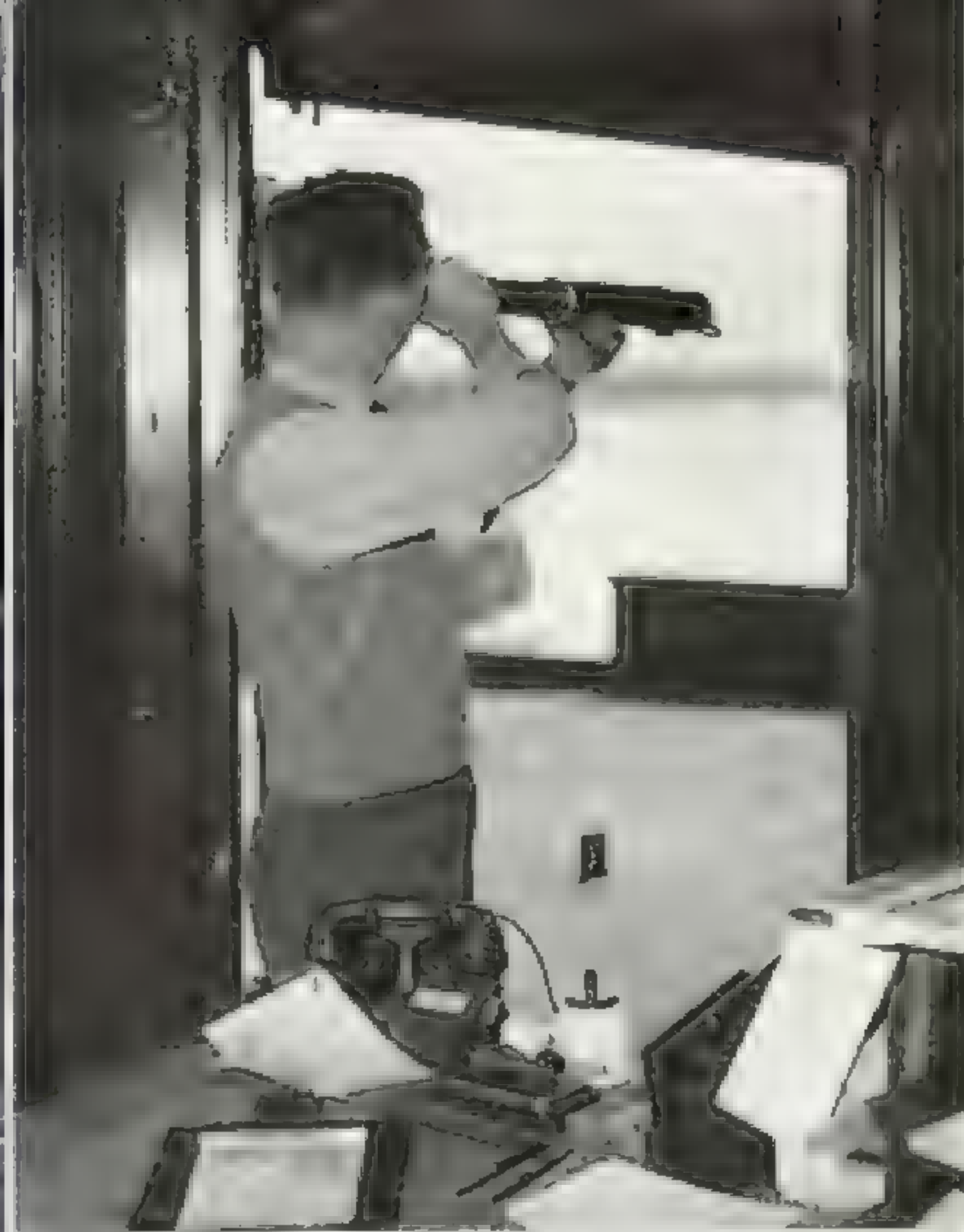


ONAL STEEL CORPORATION

Directors: Mr. Carnegie and Incorporated Steel Plant of the City of Pittsburgh, Pa.

Steel Corporation of America, Inc. 100 Wall Street, New York, N.Y.





A Spouter Tells Steps with His Glass

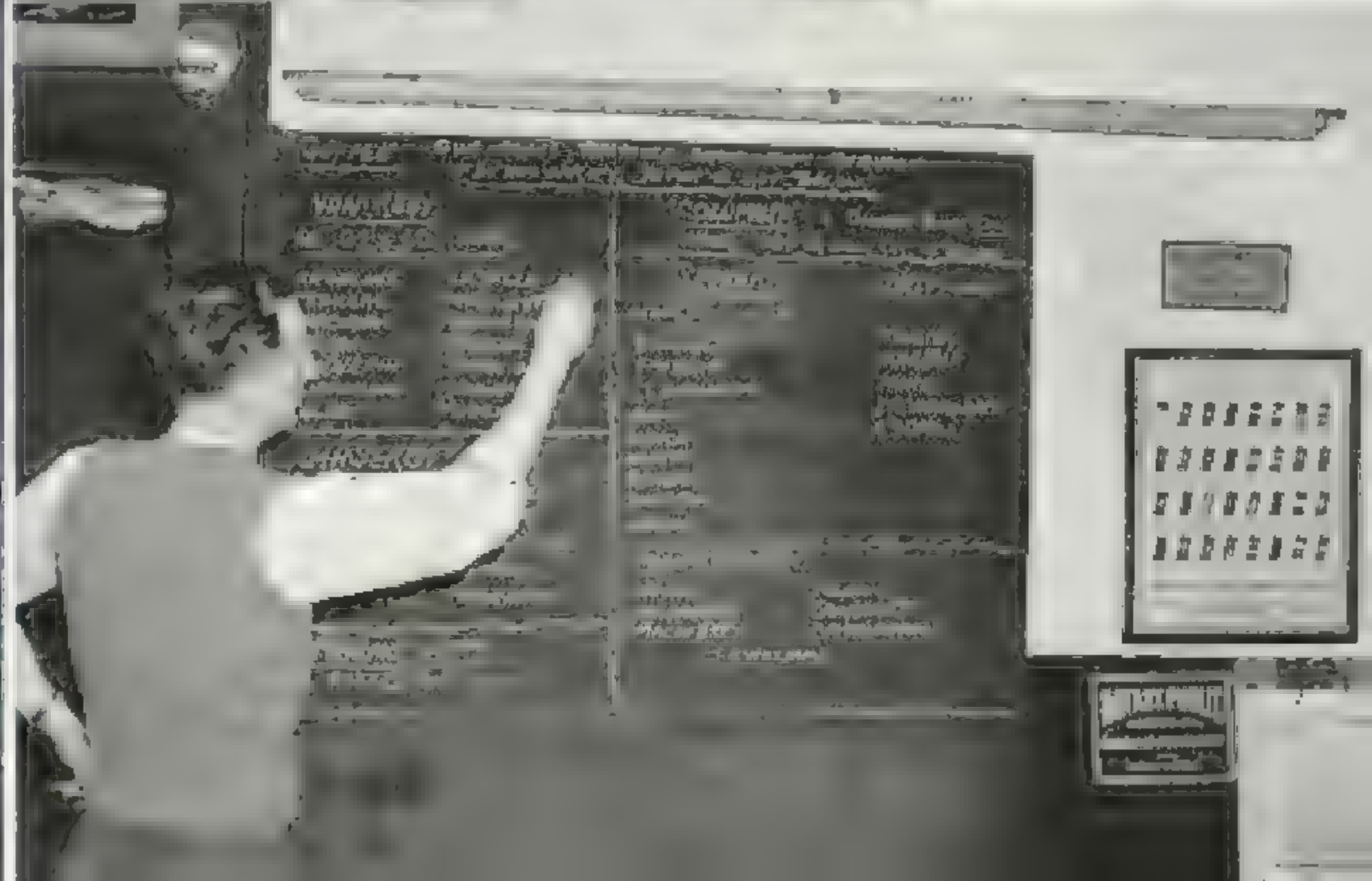
When you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is.

The first time I looked through a glass, I saw the world as it is. But when you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is.

When you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is.

When you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is.

The main reason for the first time I looked through a glass, I saw the world as it is. But when you look through a glass, you see the world as it is. But when you look through a glass, you see the world as it is.



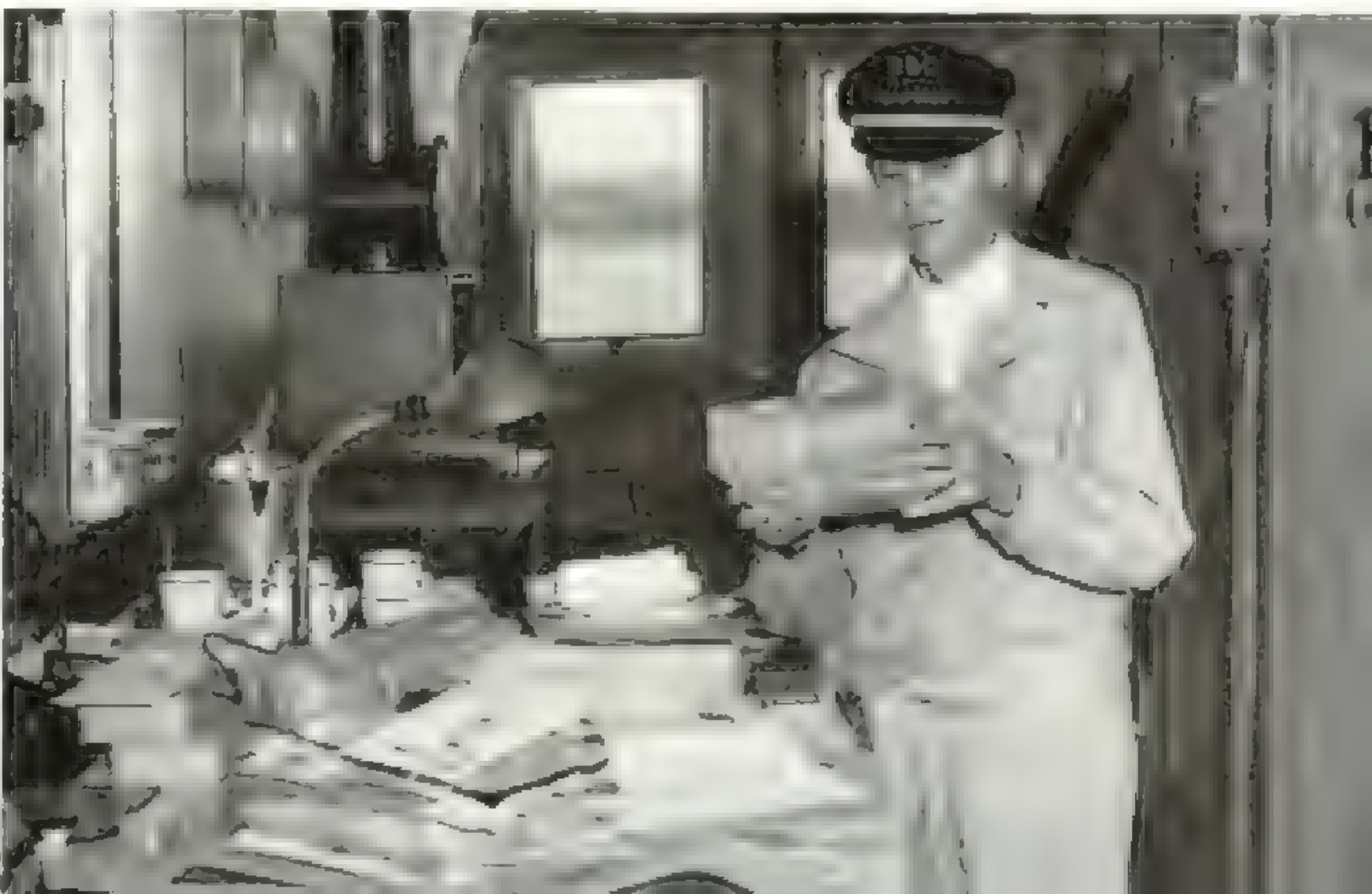


* J. H. Brewster Takes On Cargo at Her Waterfront Station

The J. H. Brewster, a large freighter, is shown here at her waterfront station, where she is taking on cargo. The ship is a large, white, boxy vessel with a prominent funnel and a large crane on the deck. The scene is set at a busy waterfront with other ships and structures visible in the background.

* A Freighter Captain Sorts the Mail in the Texas House

A freighter captain is shown here in the Texas House, sorting the mail. The captain is a man in a dark uniform with a peaked cap, standing behind a desk or counter. He is looking down at a large stack of mail or papers. The setting appears to be a formal office or a public building, with a window and other furniture visible in the background.





• Man! Tuck Seemed to a Red-Ticking Mood

Such a goodly mood, as it was, and it was not a good mood. The mood was a good mood, and it was not a good mood. The mood was a good mood, and it was not a good mood. The mood was a good mood, and it was not a good mood.

• The Crew's Thoughts Drift Miles Away

For a moment, the crew's thoughts drifted miles away. The crew's thoughts drifted miles away. The crew's thoughts drifted miles away. The crew's thoughts drifted miles away. The crew's thoughts drifted miles away.



Darius Carved History on Ageless Rock

By GEORGE G. CAMERON

Chairman, Department of Near Eastern Studies, University of Michigan

With Illustrations from Photographs by the Author

IN THE IMPERISHABLE stone of a 4,000-foot Iranian mountain, artisans of Persia the Great carved his vainglorious autobiography almost 2,500 years ago. The achievements of this king of ancient Persia (now Iran) they etched in three different languages of his realm.

This gigantic cliffside boast became, like Egypt's famed Rosetta Stone, a major key to an understanding of long forgotten languages and the cuneiform, or wedge-shaped, scripts in which they were written.

Nevertheless, despite numerous attempts to secure a perfect copy of this important document, there remained to our day tremendous gaps in our knowledge of its wording and thus a failure to appreciate its magnitude.

By use of 20th-century tools to gain access to the monument, and modern techniques of field archeology to obtain a more accurate record, I was able to achieve what men had long desired: a better, fuller copy, and hence a greater understanding of the Persian's noble monument.

Cliff Overlooks Caravan Rendezvous

Darius could have found no better or more conspicuous place for his project than the last peak of a long, narrow range which marks the plain of modern Kermanshah. At the foot of the mountain springs bubble up into a pool of crystal-clear water and supply a small stream, which flows past the village of Bisitun and away into the plain (map, page 833).

From time immemorial caravans have watered their beasts at these springs. Here every army which has marched from Iran into Iraq has camped, for the mountain and its springs lie on the age-old caravan trail between Ecbatana (modern Hamadan), once a center of the Medes and Persians, and fabled Babylon.

To the ancients themselves the spot was holy; 500 years before the Christian Era they called it the "Place of God," Baga-stana, which has descended to our day as Behistan or Bisitun (pages 826-827).

The monument was not unearned, for Darius became king in 522 B. C. only after a series of bloody pitched battles with nine other contenders to the throne. It was carved so the whole world might be informed of his prowess and of his debt to his god, the "Wise Lord" Ahuramazda.

A part of the story is told by a massive relief cut into the limestone a mountain 340 feet above the springs and 100 feet above the highest part of the mountain to which man can climb (page 839).

There today stands Darius, with high brow and straight nose. On his head rests the Persian war crown, carved with exquisite care to resemble the gold band studded with oval jewels and rosettes worn by the Great King himself (page 836).

Behind him appear two of his officers, the bearers of his bow and lance. Before him floats the winged figure of the god Ahuramazda, who taught Darius to speak the truth and whose left hand grasps the ring which bestows sovereignty on monarchs (page 829).

Beneath the god stand eight rival contenders, their necks joined together, their hands tied behind their backs; a ninth, the arch-enemy, lies prostrate under the king's left foot, his own knees and hands lifted in agony. A tenth and subsequent foe was pictured a few years later (page 830).

The relief alone was inadequate for Darius. He also commanded that the story be carved in three languages of the empire: Old Persian, the language of the king and court, inscribed beneath the relief in four and a half columns of closely written texts; in Babylonian, inscribed on two faces of a rock jutting out from the mountainside to the left of the relief; and, to the right of the sculptured panel, in Elamite, the language then spoken at Susa, or Susa ("the palace" of the Biblical book of Esther). Somewhat later, the Elamite inscription was recopied to the left of the relief.

Story of Exploits Forgotten

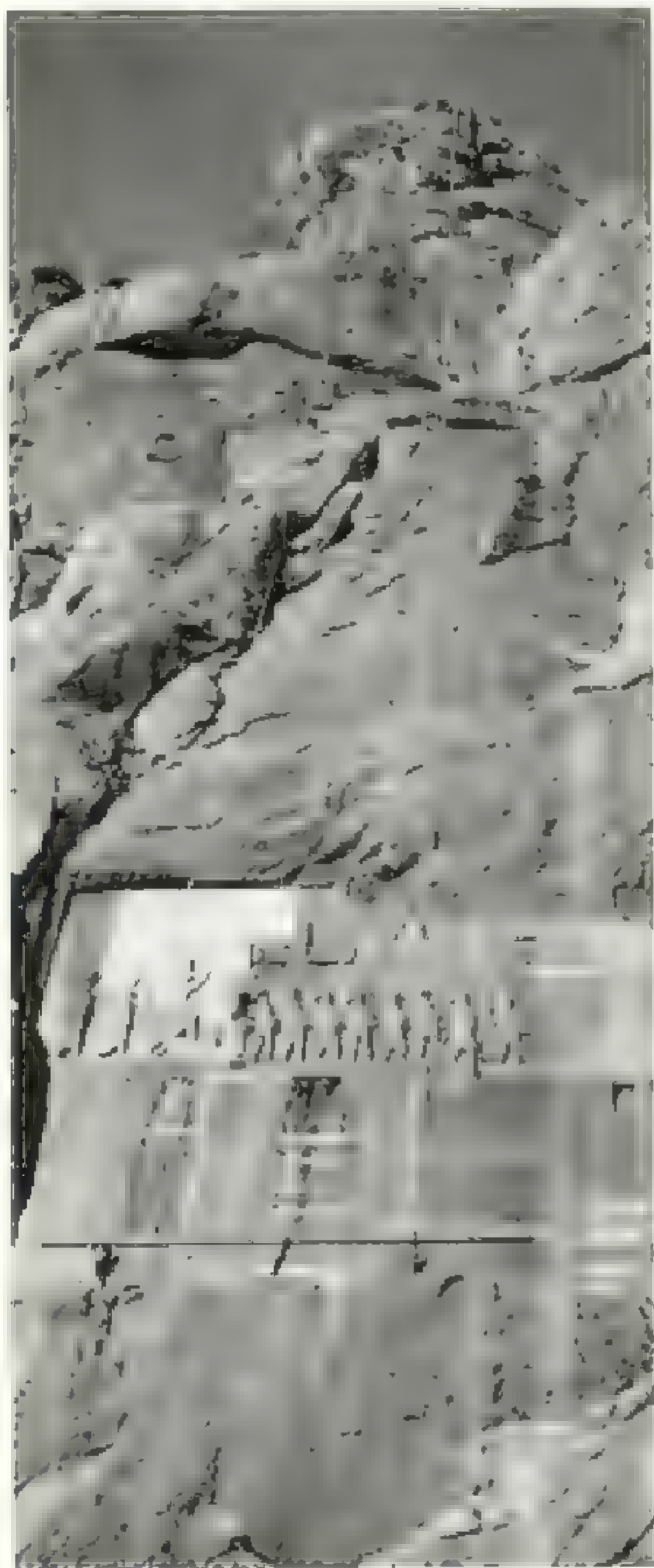
So inaccessible was the Great King's handiwork that even the citizens of his empire soon forgot the story that was told. Worse still, as hundreds of years rolled by and the languages spoken in his day were succeeded by others, men even lost the ability to understand these tongues or to read the cuneiform scripts in which they were written. But within the last century Darius's lordly monument itself provided the key by which the riddle of these languages and their scripts was solved.

The story of decipherment began when travelers compared the curious wedge-shaped signs



Darius Chase This Dramatic Limestone Outboard to Advise the World of His Prowess

Small Boat of the Limestone Outboard to Advise the World of His Prowess
The Limestone Outboard to Advise the World of His Prowess
The Limestone Outboard to Advise the World of His Prowess



Scaffold's Cables Stretch 200 Feet

The ropes were fastened to the rock and ended in steel hooks, which were attached to the scaffold by operating two winches. Here Darius, third king of Persia, was believed to have been buried. The discovery of his tomb was thereby assured, despite the whims of evolution.

at Babylon with those appearing on other, more accessible monuments in old Turkey and Persia. Sometimes they brought back copies or even samples of these "writings" to Europe, but no man there could read them.

By inference, one of the languages with its system of writing was thought to be of Persian origin, for it was very common within Persia, particularly in the ancient empire of Persia.

Another was assumed to be Babylonian, for its script closely resembled the writing on monuments found in what is now the country of Iraq, in the "Garden of Eden"—the Land of the Two Rivers, Tigris and Euphrates.

The third was totally unknown.

The initial step in decipherment was made by a German, Georg Friedrich Lehmann, who chose two short but significant Old Persian inscriptions and carefully compared them, sign by sign. When in 1815, he published his results, it was all but obvious that he had succeeded in finding the key to the understanding of these particular inscriptions.

But the material at hand for full decipherment was wholly inadequate. No long text was available to check his discoveries. Also, he had investigated only one of the three languages. Since all other inscriptions copied up to that time were too short and limited, it proved impossible to use his probable decipherment of the one language as a key to the understanding of the other two.

The inscription on Mount Bisotun gave greatest promise. Here, as we now know, are 515 lines of texts in Old Persian, 141 long lines in Babylonian, and 10 lines in Elamite. Bisotun, therefore, represented a challenge which man must meet and overcome if he would seek the hidden meanings of cuneiform writings.

The first attempt to copy the story was made a little more than a century ago when two Frenchmen sailed from London at the behest of their government and with the support of the two most famous French Academicians. They had wonderful experiences; they scrambled with bleeding hands and feet up the rock face, but they could not copy and the story remained a mystery to the world.

But in 1845, a Frenchman, a certain M. de Sacy, however, in the end, they failed in



At the top of the Parthian Winged God, Flows in Stone Above the King's Throne

The Parthian Winged God, a figure of a man with wings, is carved in stone. The figure is seated and holds a large, rectangular object, possibly a tablet or a book. The figure is adorned with intricate patterns, suggesting a high status. The rock surface is weathered and shows signs of age, with some areas appearing more polished than others. The overall style is characteristic of ancient Mesopotamian or Egyptian art.

the most difficult, but the most valuable, part of the work. They have to be able to find the right people to talk to, and to be able to talk to them in a way that will get the best results.

[illegible]



Ropes to Which Hands of the Scaffold's Climbers Aways from Jutting Rocks

The ropes were fastened to the top of the cliff, and the climbers were lowered down. The ropes were fastened to the top of the cliff, and the climbers were lowered down. The ropes were fastened to the top of the cliff, and the climbers were lowered down.

their purpose, and they saw the inscription was successful.

Roxburgh's Pioneer Achievements

It was in the year 1841 that an Englishman, Sir Thomas Roxburgh, had already reached the summit of the mountain of Kailash. His description of the ascent is very interesting. He described the mountain as a very high, steep, and rugged mountain, and he reported that he had seen many strange and wonderful things.

He also reported that he had seen many strange and wonderful things. He also reported that he had seen many strange and wonderful things. He also reported that he had seen many strange and wonderful things.

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Further, despite his monumental achievement, Rawlinson was engaged in making the first copy, and in the earliest stages of decipherment, when often he had no way of knowing what to look for. His copy, naturally, was defective.

More than that: although he copied nine and a half columns of texts, four additional columns containing 323 lines defied him, for underneath these four columns there is no ledge on which a man can stand.

In an effort to clarify some of the more dubious or difficult readings of the Old Persian text, an eminent American professor at Columbia University, A. V. Williams Jackson, climbed the Rock in 1903. He checked or collated many passages and secured photographs of the inscriptions for the first time. But the full story of his journey has not yet been told.

So again, in 1904, an expedition sponsored by the British Museum set out for Babylon. Since Leonard William King and Reginald Campbell Thompson, who labored for the Museum, could profit from more than a generation of good scholarship in the efforts to read and understand ancient writings, it was only to be expected that they should improve enormously on Rawlinson's readings.

Also, by a fortunate discovery, they were enabled to use a rock shelf high up the mountainside, thus coming closer to the inscriptions they sought to recopy. Where Rawlinson had been forced to stand upon a tiny ledge immediately beneath the texts, they dropped a rope from the shelf above and, sitting in a kind of boatswain's chair, swung back and forth across the face of the vertical Rock.



Darius's Persia Is Modern Iran, Oil Prize of Power Politics

Armen, Greek, Aram, Marzid: a hundred names have thrived across this patch of land. Six years ago its sands spent American war aid to Russia; today Iran buys Korea. Darius the Great, who in 520 B.C. conquered the land of Euphrates, left a mighty monument to his reign. The author, copying its bilingual text, preserved an immortal document (page 82).

Carefully they reworked the nine and a half columns that Rawlinson had copied. The result is indicated by the fact that the new edition is a revised publication. The last secrets of Babylon, it would seem, had been solved.

Yet they, too, made mistakes. They were unable to read the signs in innumerable passages, and they made a number of surely erroneous or impossible restorations. The fault was by no means wholly theirs, for any three men reading a worn and eroded inscription may interpret it in three, if not more, differing ways.

A succeeding generation of scholars had ad-



British CIL Executives Test the Cliffside Patch Blasted by Their Workmen

When the British CIL executives arrived at the cliffside patch, they found a scene of great interest. The relief carving, which had been discovered by the British CIL workmen, was a masterpiece of Persian art. The figures were carved in high relief, and the carving was in excellent preservation. The British CIL executives were very interested in the work of the British CIL workmen, and they were very pleased with the results of their work.

These men were very interested in the work of the British CIL workmen, and they were very pleased with the results of their work. They were very interested in the work of the British CIL workmen, and they were very pleased with the results of their work.

How Did Carvers Reach Cliffside?

Other problems likewise called for a solution. Would a closer examination of the enormous relief which accompanied the inscriptions reveal any new details of Persian art? And how had Darius's workmen succeeded in carving the relief and the lengthy texts high up on an unobtainable spot which today all but inaccessible?

A final question involved the four columns of inscriptions which had defied the efforts not only of Rawlinson but also of King and Thompson. If these columns could be read, what secrets would they tell? Some hints were given in detail of Darius's attack on Greece, the unpolished face of the religion of

these men, and the story of the Persian Empire. Yet no man knew the language in which these four columns were written.

All these things I knew when, in March of 1903, I was named Annual Professor of the Royal School of the American Schools of Oriental Research, an institution whose corporate functions are the collection of materials, the publication of periodicals, and the conduct of research in America.

At that time the international situation in 1903 appeared unlikely that the Annual Professor would be able to make any substantial contribution to the work of the schools of Oriental Research. I proposed to the Royal School of Oriental Research that I would attempt to solve some of the problems I have outlined in this paper, and in an end more than a century of work on the truly historic monument.

Within a few months I reached Kerma-



"I Am Darius, Great King, King of Kings"

Carved in the Rock, the monarch wears his war crown. His mustache is twisted and his hair gathered into a bun. The square beard, combed into 45 curls, is an inset stone fixed in place by pegs driven into the holes on either side. Vandyke's helmet is near the image. Darius the Great ruled Persia from 522 B. C. to 486 B. C. He conquered Greece, but in 490 B. C. he was defeated by the Greeks at Marathon. Like the Greeks, he was an Aryan (pages 825-83).

by one pulled up the ends of two cables. These we anchored solidly to the pins already in place. Then we returned to our scaffolding and attached it to the cables (pages 836, 832, 834).

As we looked up, however, we saw that it was going to be no easy matter to raise and lower the scaffolding daily over the face of the mountain. Tremendous outjutting and overhanging rocks would certainly interfere with our upward or downward progress.

Thirty feet above our heads was a little shelf. If we could leave our scaffolding near that shelf at the end of each day's work

and descend the rest of the way by ladder, our task would be easier. So we placed a long ladder to reach the shelf against the rock wall. Now, in truth, we were ready (page 835).

Up to this point we had had a large crowd of sight-seers and willing native workmen. Three only were needed upon the scaffolding, one to man each of the two winches, and one to feed it off from the rocky wall. I would be one of the workmen and so only two others were required.

I turned to two men who had appeared to be most competent.

"Will you come up top with me?"

In unison they replied, "Not us!"

"Why not?" I asked.

"Too dangerous," replied these Kurdish villagers, who have long been noted for their headstrong daring!

Shocked, I asked for volunteers, offered prize money, and had for answer only low negative murmurs. My project faced disaster if these men failed me!

Finally, one of the riggers, on loan to me for one day only, stepped forward and, following him, a sight-lad, named "Servant of Ali." Here were my workmen for this day; perhaps tomorrow we did take care of itself.

Ours was a hard task, for time after time one or both of the winches were jammed up into the numerous overhanging rocks. But little by little we raised our scaffolding higher and higher; we fought not only the outjutting boulders and our own weight on the scaffold, but also the weight of dozens of men clinging down below to ropes by which they too were trying to hold our

platform away from the mountain side.

We Reach the Ledge!

We passed the little shelf 30 feet above them, against which our ladder rested. We passed an oblique gash, the significance of which at first escaped us, and we passed solid rock scarped by thousands of chisels.

At long last our scaffolding rested securely on the ledge immediately beneath the inscription, which now, for the first time, my hands and eyes caressed.

It was a triumphant moment. All past worries over the arrival of the materials and the feasibility of my method of attack disappeared. All obstacles, including the mountain itself, had been overcome. Nothing remained but to place a new inscription, copying the knowledge gained from 20 years of study to the age-old memorial.

The expedition, I knew in that moment, would succeed.

Our first day's work ended on this note. As we prepared to descend, I realized the meaning of the oblique gash which we had passed on our ascent, and which we could now see slanting sharply downward just below us. It was an ancient pathway, now partially blocked by fallen rocks.

We left our scaffolding where it was and followed the path down. Forty-eight feet of it still remained. Then the path ended, in scarped rock, still almost 50 feet above the watchers below.

Five feet below its end, however, there was a little semi-circular platform about 9 feet long and from 18 inches to 5 feet in width. We dropped to this platform and looked down again. There, 12 feet beneath us, was the top of our ladder, just resting against the edge of a tiny triangular shelf.



Hussein of Iran Eyes His Persian Ancestors' Forgotten God

Abaramazda, the carved deity here seen, occupies an inscription covered with a rather faded but intelligible text.

Cautionally we lowered ourselves once more, our hands and feet seeking purchase in a fissure which ran down to the shelf below. Our bodies were taut one by one, we gained the shelf and descended the ladder.

Difficult and dangerous though this method of descent and ascent might be, here was our easiest way of access to the inscriptions. From that time on, we knew, ropes could help our progress up to the scaffolding, which itself would be used only to our platform at the height of the inscription and shelf.

Our first day's work was done, but I needed a workman to replace the company's rigger. Once again I asked for volunteers, this time for the morrow. Encouraged by our day's success, a young boy ranged himself behind Servant of All.



But the fossils of the earth had not disappeared. Although the water had dissolved the limestone of the great soft bottom, that limestone was not being carried, upon the face of the mountain, lower down! Where once there had been wedges or spurs carved into the rock, long thought to be destroyed, there was now a solid deposit of rock. This was not "destruction" at all, but preservation! It was a solid, the geologists, speaking a



Darius's Monument to His Own Glory Reflects the Prowess of Ancient Persia

CHIEF OF THE ARMY, ALEXANDER THE GREAT, AND HIS SUCCESSORS, THE ROMANS, AND THE ARABians, THE TURKS, AND THE MOSLEMS, ALL HAVE BEEN AT THE MONUMENT OF DARIUS, AND HAVE TAKEN IT AS A TRIBUTE TO HIS GREATNESS. THE MONUMENT IS A REMINDER OF THE GREATNESS OF THE PERSIAN EMPIRE, AND OF THE GREATNESS OF DARIUS, WHO WAS THE FIRST KING OF THE PERSIAN EMPIRE.

tufaceous) formation over the surface of the original inscription.

We were in a position somehow to "erase" this sedimentary deposit, but how were we to remove it without damaging the signs beneath it?

Acid was certainly not the solution. Acid would eat away not only the deposit left in each cut wedge, but also the solid rock itself. A hammer and plain water was our answer.

By delicate hammering through the surface deposit I could reach the original rock surface. Then I could rub a moistened cloth across the face of the invisible wedges. As the water evaporated, there was a difference in coloration between the original rock and the filled-in wedges. Sign after sign, word after word, thus became evident!

Sometimes our problems were solved in a disconcerting manner. For instance, there was a phrase in one line which for two generations had been the subject of debate among scholars. It was quite clear that Darius was saying something about one of his benchmen, but no one had been able to read it.

When the passage came clear in our work, we were reminded only of the "vanishing Venetian, the little man who wasn't there" for Darius merely says, "At that time my servant was not there at that place!"

Thus some gains are in reality small or insignificant.

Others, however, contribute more to our knowledge, such as a new reading in which the King declares, "Now do you believe what I have done, [even] this [story]; to the people tell it, do not conceal it."

This passage, also long fought over by orientologists, intrigued us much, for we were indeed endeavoring to carry out Darius's wishes.

Boulder Nearly Causes Tragedy

The way rocks might fall from the cliffside was indicated when, one day, Hussein was sent to the shelf high above, while I remained upon the ledge. At a given signal he was to swing the cable over a projecting rock, and I was to do the same on the ledge below. The signal was given, we swung in unison, and I heard a sinister rumble above me, that of a falling boulder.

For me upon the ledge, as for my wife and sons below, there was no shelter. I gave a cry of urgent warning and flattened myself against the face of the inscription. The large boulder hurtled by, hit the ledge, and seemed to explode. All of us were struck by some of the tiny fragments; but the overwhelming relief that flooded us, as hurriedly

each responded to the other's call, can well be imagined. We never tried to move the cables in just that way again.

The ledge beneath the Old Persian version varies in breadth from 3 to 6 feet; to the left it continues beneath the Babylonian and the second Elamite copies, although it is not quite so broad. To the right of the Old Persian text there is at present no ledge whatsoever. Above this portion of the monument, at the height of the sculptured panel, are the four columns of texts never before copied, and of which not even the language was known.

Carefully, from the shelf above, we adjusted the positions of our cables and then, returning to the now familiar ledge, raised the scaffolding so that it stood in front of a part of this hitherto unknown text.

What would it tell us?

First glance showed that this text was frightfully weathered, damaged in part beyond recovery. Yet here and there signs came clear, and they were Elamite signs.

I began to read, "And Darius the king says: a man named Phraortes . . ." and realized that the text was duplicating what, in a much better state of preservation, appeared beneath the Babylonian version below and to the left of the relief!

We moved from the first to the second column, from the second to the third, and continued to read in Elamite. Finally we moved to column four—and there was no change in language or in phraseology; sign after sign, word after word, this text was a duplicate of the other well-known Elamite inscription!

Naturally, I was disappointed, for my hope of finding a new inscription of Darius was gone. Still, there was certain gain: by determining what was here written, we had unlocked a door that, until opened, would always be tantalizing. Furthermore, by copying this text also we could unquestionably improve the reading of the known Elamite text which had been copied by others and which was still to be secured by us.

Text Transferred to Latex

Our copying technique involved photography, our eyes and hands, and a latex solution. Photographs were easily made from the scaffolding. On paper my hands copied what my eyes could see. With the latex compound, however, we were able to make molds which any scholar could read and trust, and which reproduced every sign as it was made by the ancient sculptors, or, rather, as it appears today (page 837).

We first cleaned the rock surface with soft



Thomas Cameron, the Author's Son, Measures the Ledge Where the Carvers Stood
The platform, 3 to 7 feet wide, lies some 100 feet above the lower point to which Cameron could have climbed without his scaffold where shadow he cast on the rock. A mud wharf on the Persian river

was used for apertures in the rock face of the cliff. The mud was used to build walls for the natives. One day, some of our men took this strip of mud and painted it on the rock face of the cliff, which was to be used as a scaffold. Upon a thicker, fourth wall, to give help to our mud, we laid strips of burlap bags or sackings which we then painted for the same purpose. After 24 hours we moved the scaffold, and our mud frame work was built up into carefully worked in the rock.

This hitherto unbroken rock wall for 7 feet across the face of the cliff. Our scaffolding measured but 16 feet long, but three feet in front of it its end was the which by which the platform could be raised or lowered. Necessarily, then, we often found ourselves working on top of the scaffolding, because the wall was so high was no other way.

The position was not automatically dangerous, except when we reached out beyond the end itself. Although we were always fully aware that a slight slip would produce a fall

the boys for help. One day, as I was standing on the scaffolding, the boys were at the time and made me sit down and put me in a chair. "Don't go back, I'll not speak to you again."

Wife and Son Stand Watch

Every morning, as I went down to the river, I saw a woman with her son and daughter standing with us from Kermanshah to the river. They stayed with us day, but son, Tom, and I descended the path and the river. I had a very good will from the mountain side. However, they were not so wanted helpfully on the river and at the end of each day's work.

Every morning, as I went down to the river, I saw a woman with her son and daughter standing with us from Kermanshah to the river. They stayed with us day, but son, Tom, and I descended the path and the river. I had a very good will from the mountain side. However, they were not so wanted helpfully on the river and at the end of each day's work.

Later, in the evening, we continued water native, but which could be brought in the water of the river at Kermanshah.



What Made Monarch? Who Carved His Figure on Bison Boulder?

The following is a list of the names of the persons who have been appointed to the various positions in the various departments of the Government of the State of New York, for the year 1900.

Each of us was carrying and in a moment after meeting we found that we had a considerable amount of food over massive loads to reach the foot of the glacier. We carried our Mount Kinaman water bladders, food, tools, clothing and blankets, as well as a dangerously large but necessary load of latex collection equipment for obtaining the latex solution.

At 10:30 P. M. the wind shifted, it wafted
the perfume from my
mountain Butters wedged in shallow
creeper high up the angelike rock. Some-
times we lost our lunch or labor to
the vertical rocks, or to observe the start of
birds into whose nesting places in crevices
we were.

There were no markings on the page in 1945. The letter was written, the note was placed at the end of the letter, and the letter was

turned through the plain. There we could see the tea and coffee houses, police post, and school groups around the growing seasons when sugar cane shows a crop of trees and fed the half mobile soil.

Down the road from the near-by village came thousands of people, men, women and children, yet proud, each head crowned by a jar to be filled with water. There too herds of sheep and goats wended their way along the road to distant pastures, or patient donkeys laden with farm produce plodded wearily to market.

Called "Punks" by Unappreciative

Trucks and private cars. Replied "sure",
 so let them go on. Not for a stretch, a
 cup of tea at the nearby Chinese stand, for
 some, and on partway of the mountain to see
 what these foreigners were like. One—
 an American at that—when we looked

in Baghdad, unwittingly asked us if we knew who the "fools" were who, when he passed Bistun, had been clinging to the precipitous sides of the mountain!

Far across the plain, another mountain range lifted its rugged and soon snowy crest.

For 10 of our 21 days at Bistun the weather was delightful and crowds often gathered to watch our progress. After that, however, we had to fight the elements.

First came the winds, buffeting our little scaffolding so hard that at times we felt like circus performers, flying through the air with great ease.

One grievous day a page torn from my notebook scudded across the 37-foot length of ledge, and then, at terrific speed, began to go straight up the mountain. It was thousands of feet to the peaks above and we seemed to see it go over the top. It was at one of these times, I believe, that Tom and Douglas gave Superman's urgent cry, "Up, up, and away!"

Then came clouds, rain, and cold—clouds that blanketed Bistun in mist, with snow on top, and rains that drenched us, slowed our progress, and made our work almost a night-mare.

Hard to Keep Warm

One bitterly cold day, when Hussein appeared for work dressed only in a thin shirt and pair of trousers, we lent him a coat and a blanket and still the brave lad's teeth chattered.

Thereafter, as often as possible, I worked alone upon the scaffolding, although there seemed to be no way that one could keep warm. In addition to underwear and socks, two pairs of trousers, shirt, and sweater, all

I had, I wore an army coat and a native leather jacket and still needed, thrown round my shoulders, an army blanket, which the wind was loath to leave in place.

After completing our examination of the Old Persian and first Elamite texts, we moved cables and scaffolding to the left of the relief to recheck readings of the second copy of the Elamite inscription. This time, we prepared to raise the scaffolding above the huge outjutting rock which, on two faces, bears the story of Darius as written in Babylonian. This, we knew, was a dangerous undertaking.

It was next to impossible to prevent the upper part of the winches from jamming up into the overhang. Also, as Rawlinson correctly noted a century ago, the mass of rock on which the inscription is engraved bears "every appearance . . . of being doomed to a speedy destruction, water trickling from above

having almost separated the overhanging mass from the rest of the rock, and its own enormous weight thus threatening very shortly to bring it thundering down into the plain, dashed into a thousand fragments."

Inch by inch we tried to ease the scaffolding up over the "hump," and time after time the overhang foiled us. Once, when the scaffold was sharply tilted, a cable somewhere above slipped over another overhang, and we were tilted at an even more alarming angle. Slowly we righted our fractious "craft" and made a fresh end, this time, a successful ascent.

With the latex solution we were then able to obtain a new and better copy of this portion of the inscription.

Sculptures Carved with Skill

Our work was nearing a close, but we had still to examine the reliefs and to follow the ancient path to its onetime end.

Viewed from the ledge or from the ground below, the sculptures appear to be carved roughly and without much skill. This is by no means true. In fact, they compare favorably with the famous reliefs executed at Darius's royal capital, Persepolis, 450 miles to the southeast.*

Those at the capital were intended for public gaze; past them, on every New Year's festival, marched kings and princes bearing tribute from lands near and far. Those at Bistun, on the contrary, are placed high up the mountainside where the life-size figures of the King and his guards appear diminutive, almost infinitesimal. Nevertheless, these same figures are excellently conceived and carefully executed: fingernails, beards and mustaches, bracelets, bows, even shoes are skillfully delineated (pages 830, 836).

With royal disdain, Darius states at the nine rulers whom he conquered, and trophies with one foot his arch-enemy, Gaumata. The King's beard, braided and curled, is a separate block of stone set into the rock; it is held in place by two iron pegs, leaded in. One peg, thrust into a hole bored in the living rock, starts in his neck and ends in the inset block; the other begins in front of his mouth.

All the orifices or openings were once filled with lead.

Other inset pieces add detail and beauty to the shoulder and the bow of Darius, to the bow of one of his guards, and to the crown of the figure of the winged god, Ahuramazda. Jutting out more than three inches from the

*See "Exploring the Secrets of Persepolis," by Charles Beaudou, NATIONAL GEOGRAPHIC MAGAZINE, October, 1933.

god's or own may still be seen an iron peg, encircled with lead; once, no doubt, the peg was surmounted by a silver or gold ball which glittered in the sun to indicate deity (p. 829).

Above the relief, an inscription bears Darius's proud boast of his kingship and royal descent. The wedges by which the names of his ancestors were cut into the rock were themselves filled in with lead so that they too could add luster and dignity.

The local villagers may even preserve some faint memory of the brilliant ornaments that once made of this monument a still more magnificent spectacle, for an interesting rumor lanned out over the countryside as we worked upon the relief.

The rumor arose when, one day, my wife appeared at the Rock wearing a dress trimmed with gilded buttons and a beaded goldlike belt. "The American," it was reported, "has given to his wife a gold belt from one of the figures of the nine deities!"

Modern Riflemen Damaged Figures

Here and there we could see signs of willful mutilation in the relief, all done in modern times by the bullets of passing riflemen. Because of this, and because of damage to the inscriptions caused by the underground streams of water, the Iranian Government has most properly sought some method by which the life of the sculptures and writings at Bisitun might be preserved.

In times past, when queries of this sort have been directed to scholars, the only answer they knew to give was, "We must preserve them by recording them as accurately as possible."

Our expedition, however, managed to preserve a portion of the relief in even better fashion. By making a mold of the noble figure of Darius, a guard, and the "War" Grumata. From that mold, in time, a cast will be made, and so the Great King may stand before peoples in America or elsewhere just as he has stood for almost 2,500 years on the Rock of Bisitun.

At long last, we were ready to trace the full course of the old path by which Darius's sculptors reached the spot on the mountainside almost inaccessible today. Slowly, cautiously Hussein and I moved across the deliberately smoothed or scarped surface 60 feet around the mountain's face to the point where, perhaps, that path might once have had its beginning. A pleasant surprise awaited us: here was a level platform with two steps leading downward.

In the top step holes had been cut, doubtless for the purchase of wooden rails. Below the

second step there was nothing but a vertical descent, for the stairway also had been chiseled away completely. But now we knew almost the full explanation of the method by which the Persians themselves had attained the heights.

Four Goals Attained

All four goals were thus achieved: we had copied the four hitherto uncopied columns; we had checked all three texts which had previously been copied (and solved many difficulties in each of them); we had photographed, examined, and taken molds of the relief; and we had been able to determine the method by which the Persians had reached the heights to carve their handiwork.

Then came the final day when, for the last time, we stood upon the ledge. My hands touched gently a portion of the inscription which our labor had clarified.

"Says Darius the king . . . if thou shalt not conceal this exact, but shalt reveal it to the people, then shall Ahuramazda be thy friend, there shall be to thee a large family, and thou shalt live long."

It was a pensive moment.

American and British corporations had given of their materials and of their time; the American Schools of Oriental Research and the University of Michigan had granted me the opportunity; and I and my family, with the help of a little Persian boy, had added our energy and skill. We had all been struggling to achieve the same goal—recording of Darius's monument for posterity—and the Great King's blessing now seemed to be addressed directly to us!

Slowly, Hussein, Tom, and I descended the pathway and climbed down the ladder. As we reached the ground, our hands gave a gentle pat to a low bush beside the ladder, a bush covered with small pieces of cloth tied there by countless prayerful souls beseeching Allah for a son. We too uttered a silent prayer, but one of thankfulness that our labor, now ended, had been successful.

For the last time, as a family group, we looked up once more to the majestic figure of the King of Persia. Then, hand in hand, touched by the last lingering rays of the sun, we let our eyes wander over the beautiful panorama of sky and mountains, plain and village below us. As we stood thus, the sunbeams peaked and the next generation of boys of Iran issued from the door of the schoolhouse far below.

Our day, our work here, was done.

For additional articles on Iran, see "National Geographic Magazine Cumulative Index 1909-1919."

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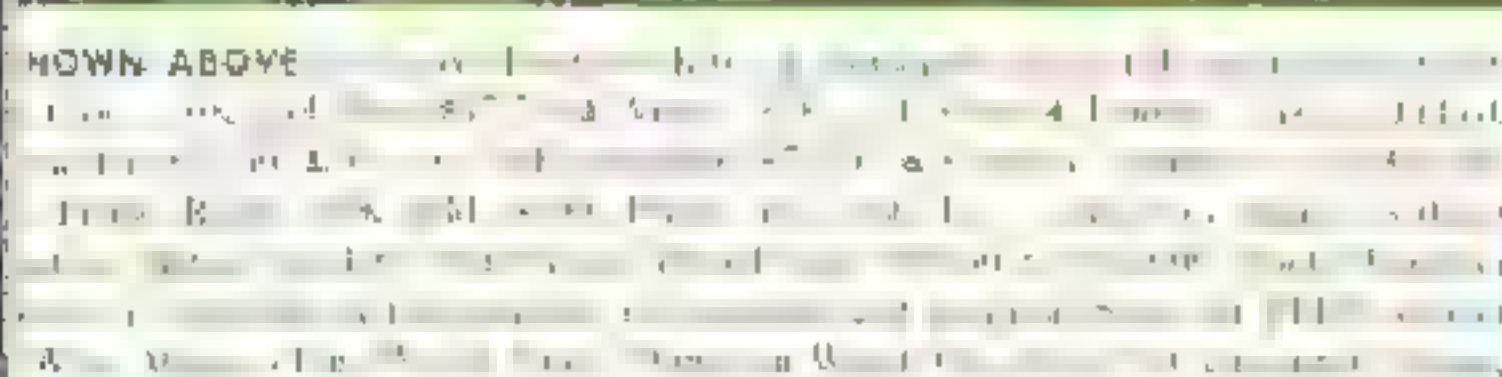
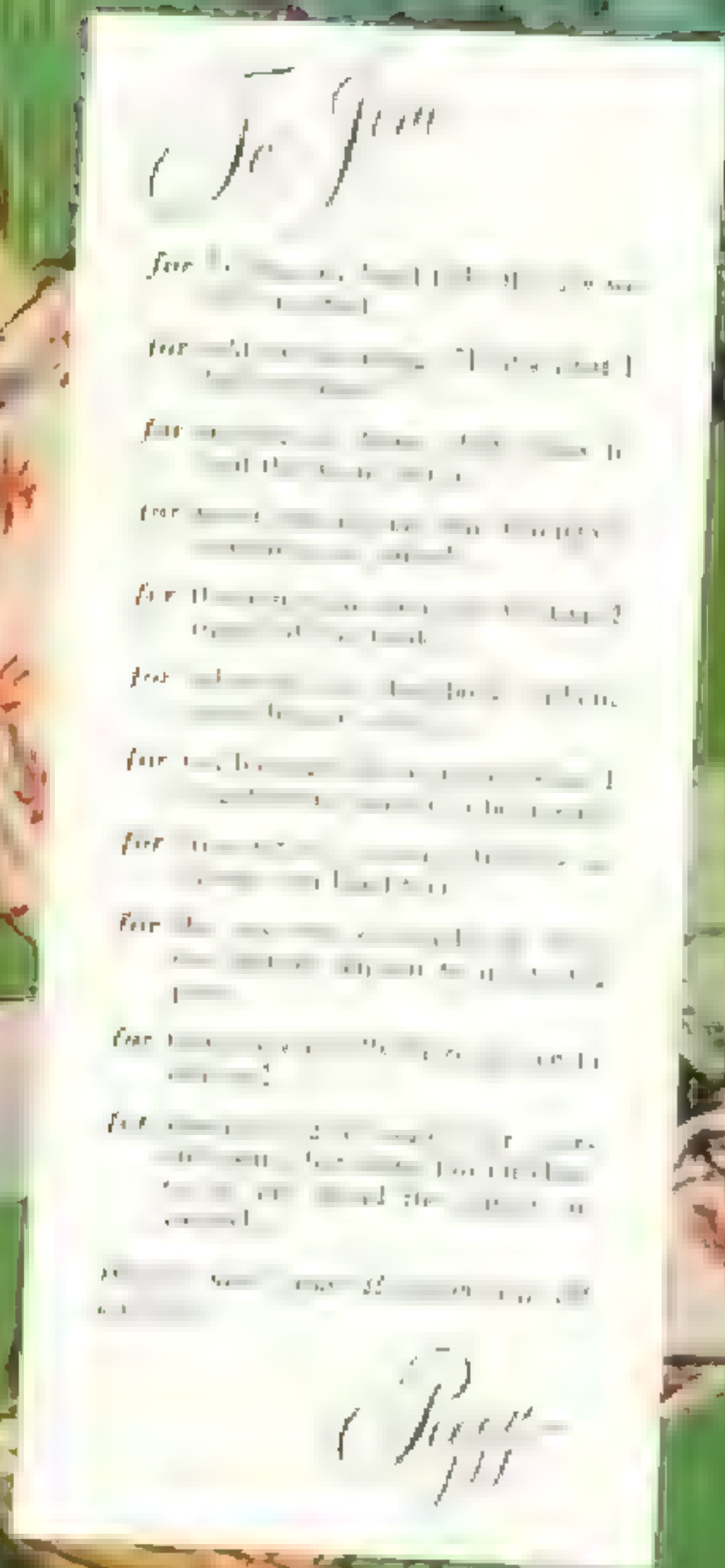
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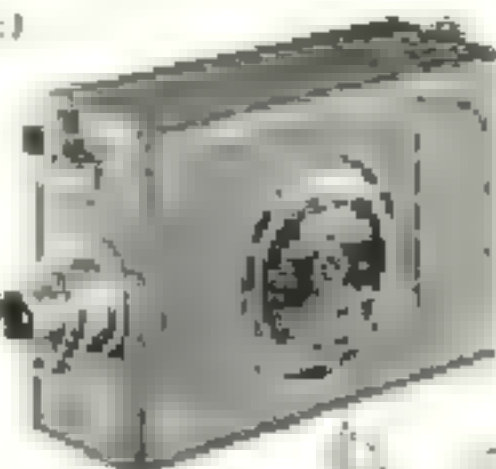


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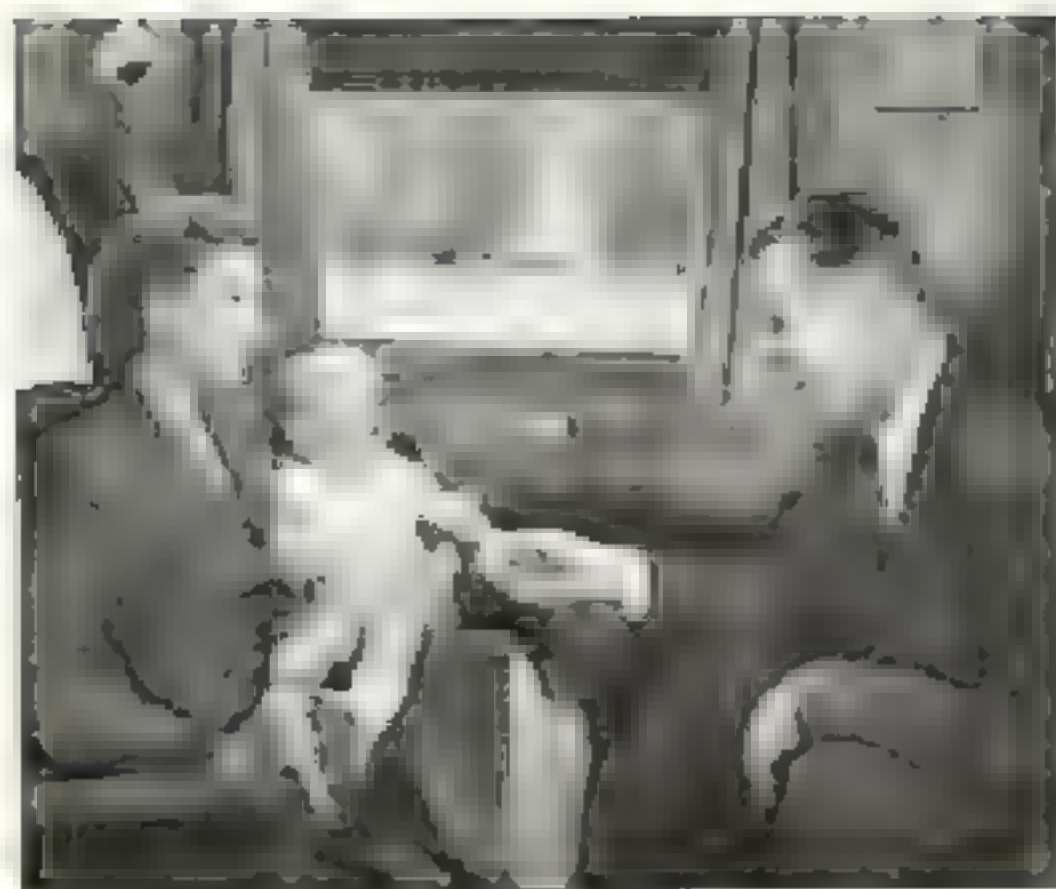
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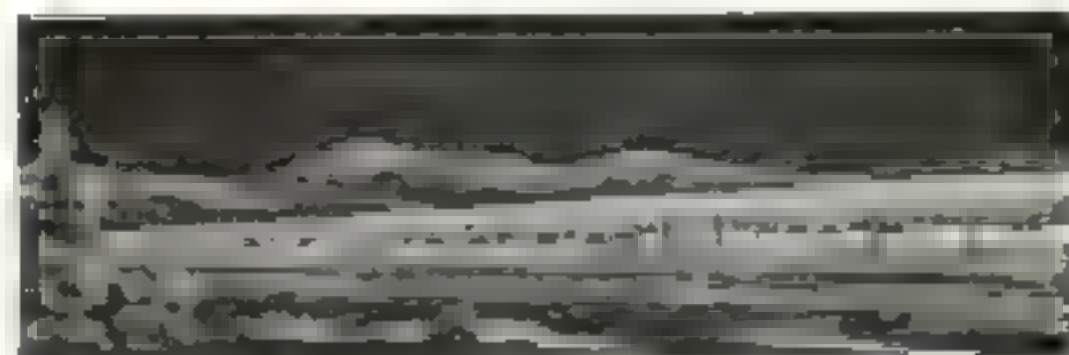
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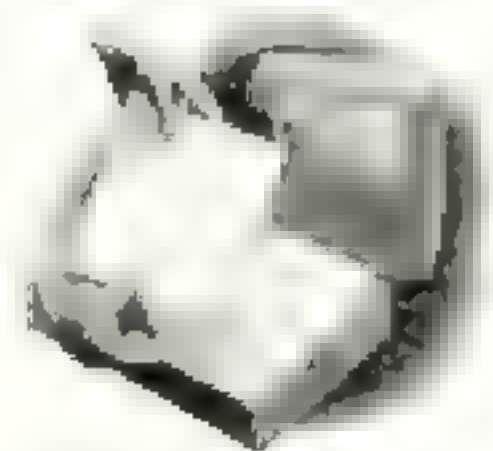
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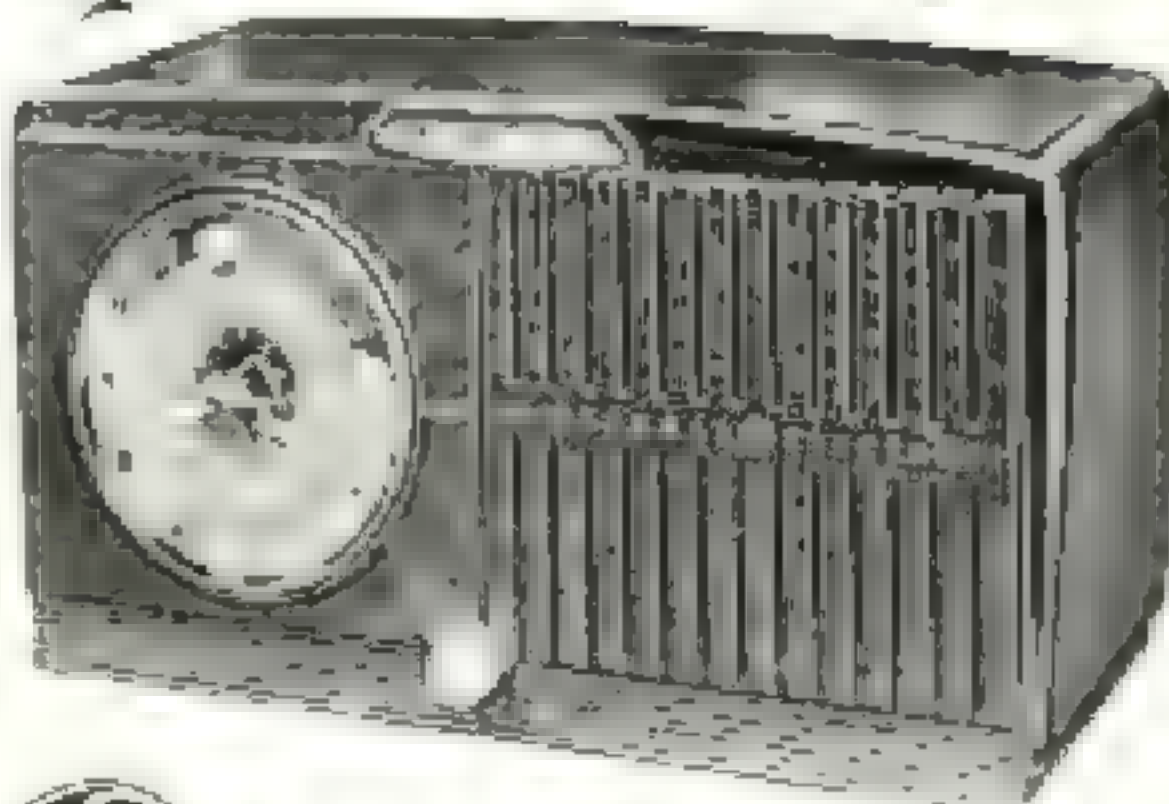


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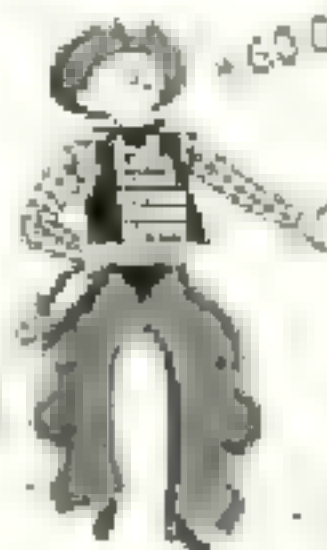
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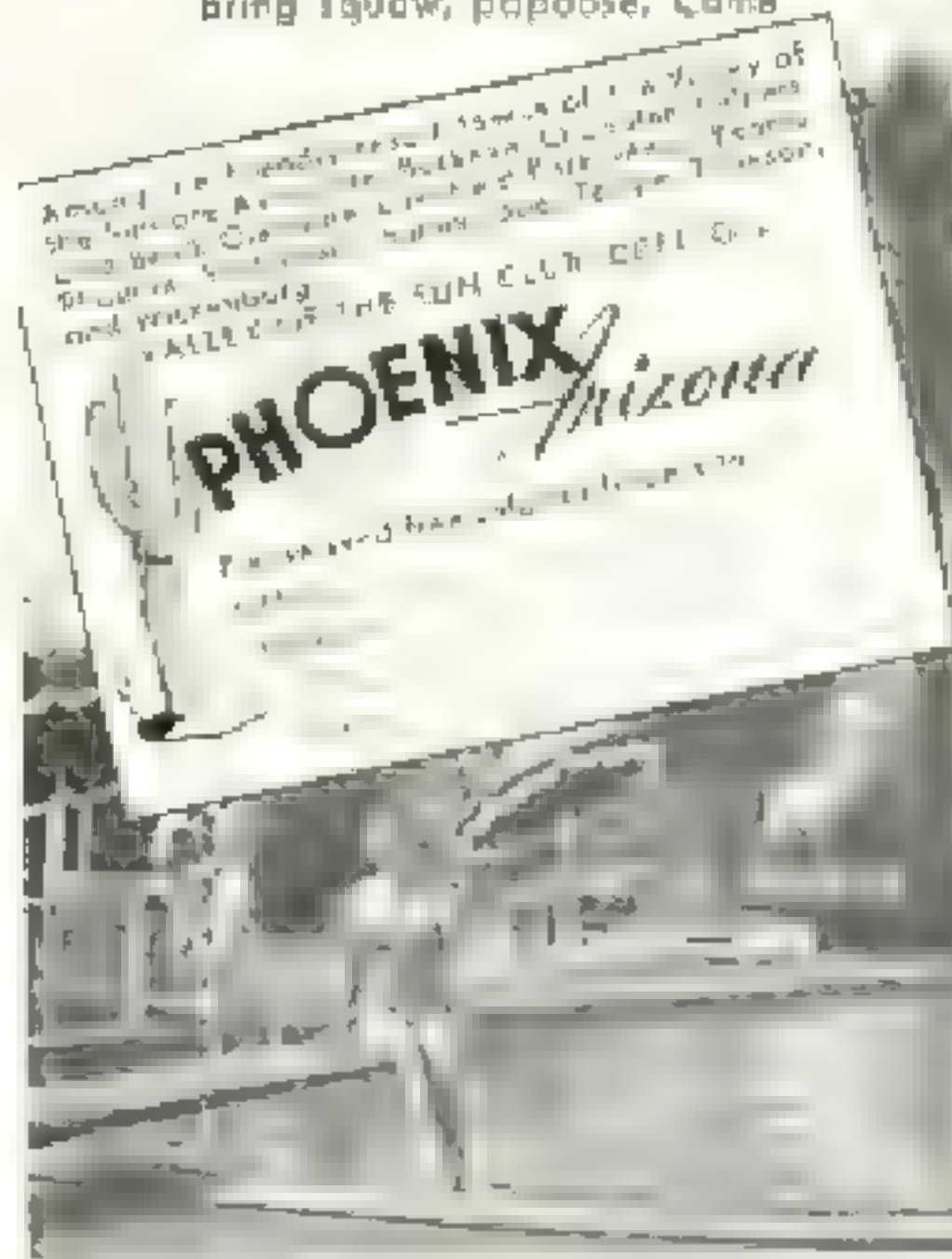
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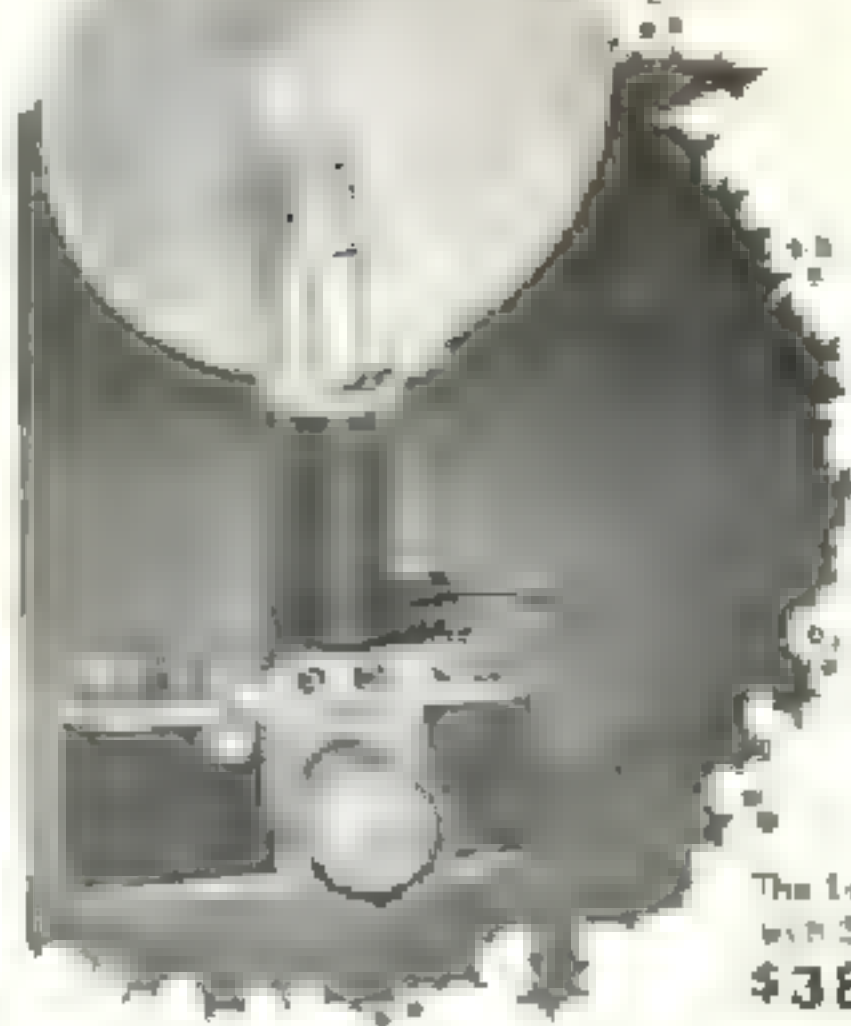


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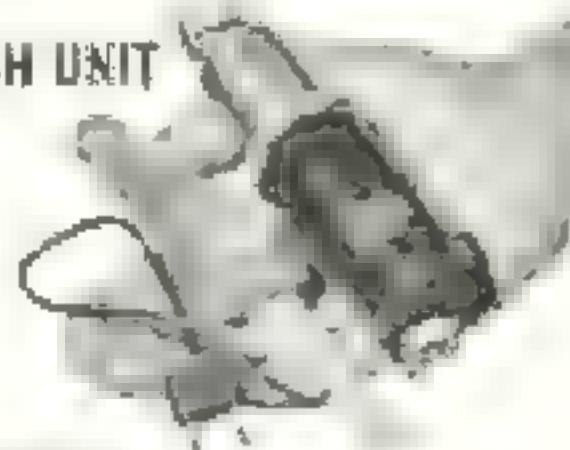
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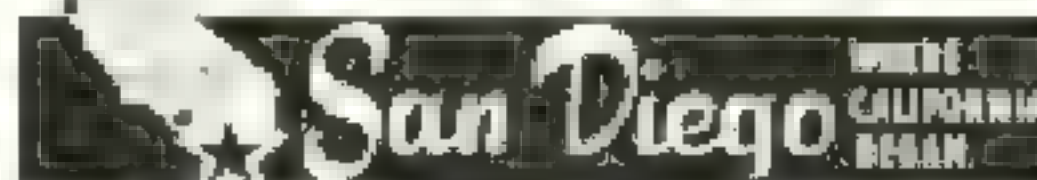
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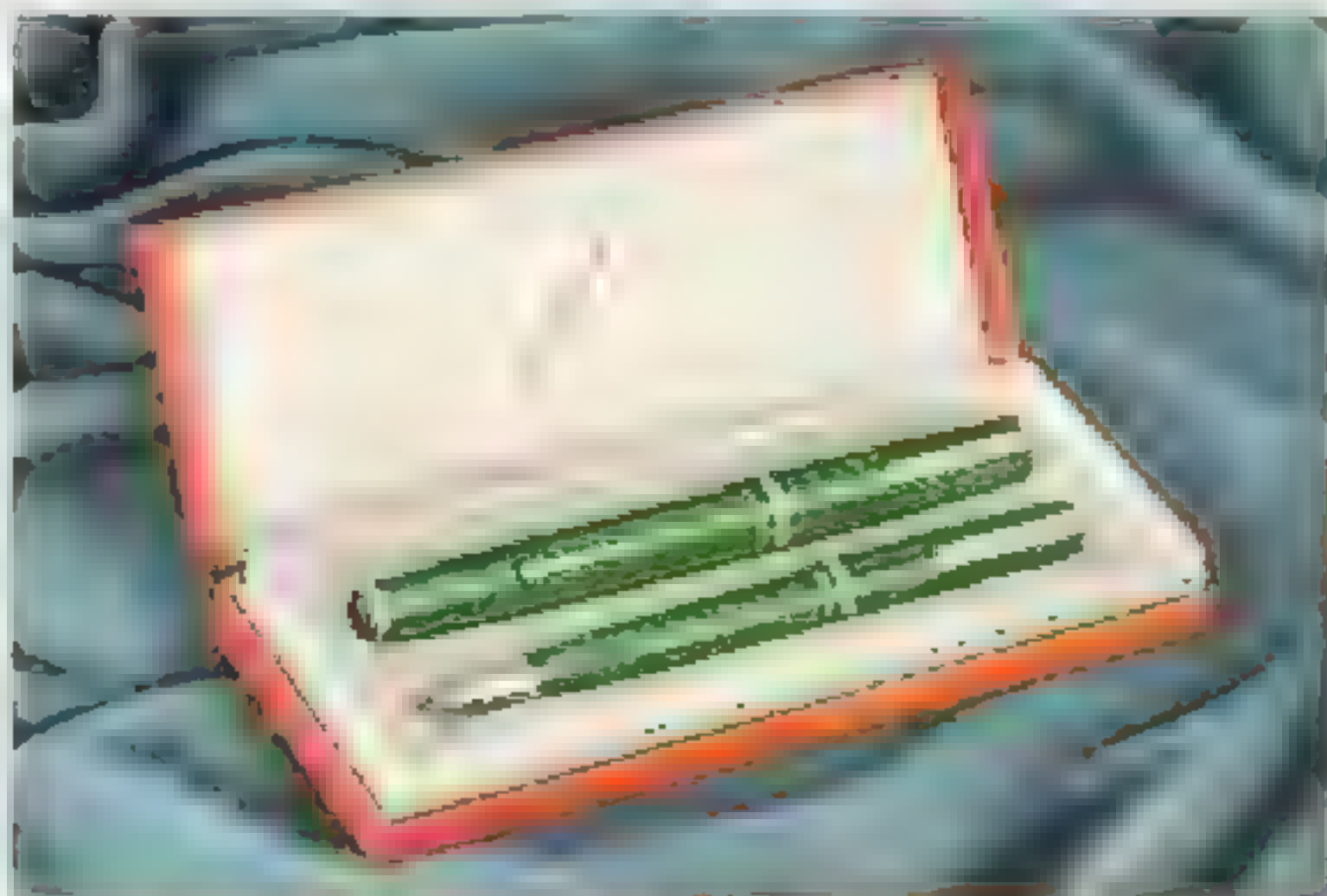
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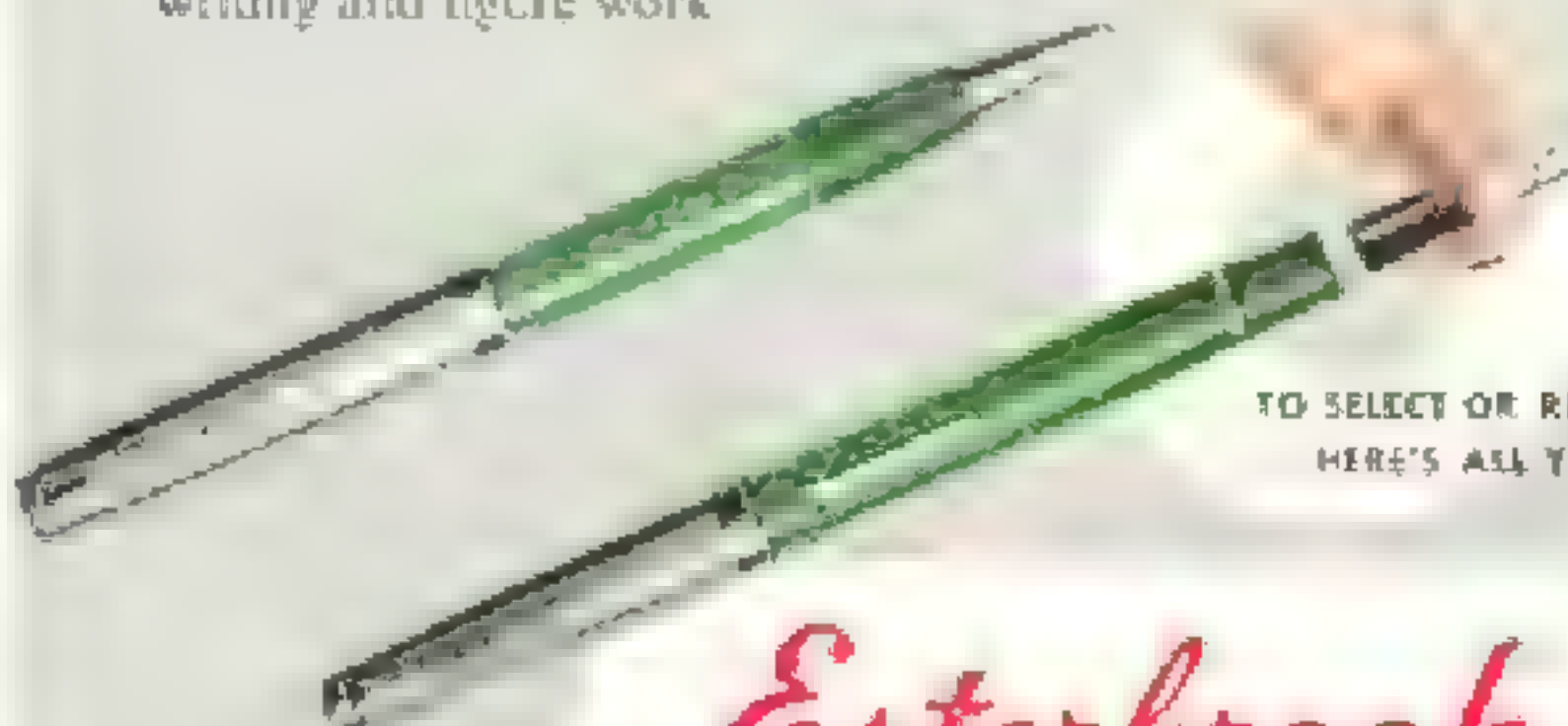


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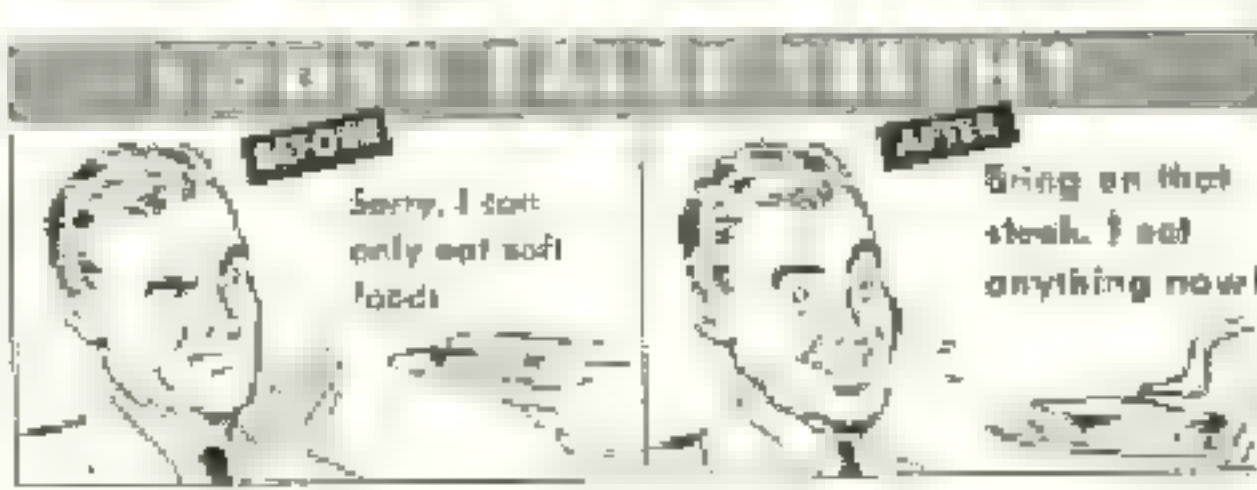
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The mortality rate for tuberculosis has declined steadily over the years. According to the National Office of Vital Statistics, the death rate in 1930 was 194 per 100,000 population. Today, it is less than 28—the lowest on record.

Despite the decline in the death rate, tuberculosis has by no means been conquered. Nearly 40,000

people in the United States lost their lives last year from this disease, and over 130,000 new cases were reported.

Doctors urge continued efforts to advance the fight against tuberculosis. They suggest three ways to do this—*detect the disease early, treat it promptly, and prevent new cases.*



1

Detect the disease early

The surest way to find tuberculosis *early* is through an X-ray examination at the doctor's office or at a chest clinic. This is especially important if a persistent cough, fever, a "tired feeling" or loss of weight occur—for these may indicate early tuberculosis.

The disease may, however, be a "silent sickness" and show no signs at the beginning. That is why it is wise to have X-ray pictures made during an annual health examination, or whenever a chest X-ray program is sponsored in the community.



2

Treat it promptly

If tuberculosis should be detected in an active stage, prompt and thorough treatment is essential—preferably in a tuberculosis hospital. This usually calls for complete bed rest, which helps the body heal the infection.

Other measures may be used including surgery and drug therapy. New drugs, used as an adjunct to

rest or surgery, have been especially beneficial in certain types of tuberculosis. There is hope that more effective ones may become available in the future.

Under proper hospital treatment, authorities say practically all persons with early tuberculosis have an excellent chance to get well.



3

Prevent new cases

To help prevent new cases of tuberculosis, specialists urge that those who have the disease remain in the hospital until their condition is under control.

In this way, families, friends, and associates are saved from the danger of infection, for tuberculosis is a "catching" disease spread through contact.

The likelihood of developing it may also be reduced if everyone guards against the disease by getting plenty of sleep, rest, proper exercise, and nutritious food.

Regular health examinations, including a chest X-ray, can usually detect tuberculosis before symptoms become apparent—and often before it becomes contagious.

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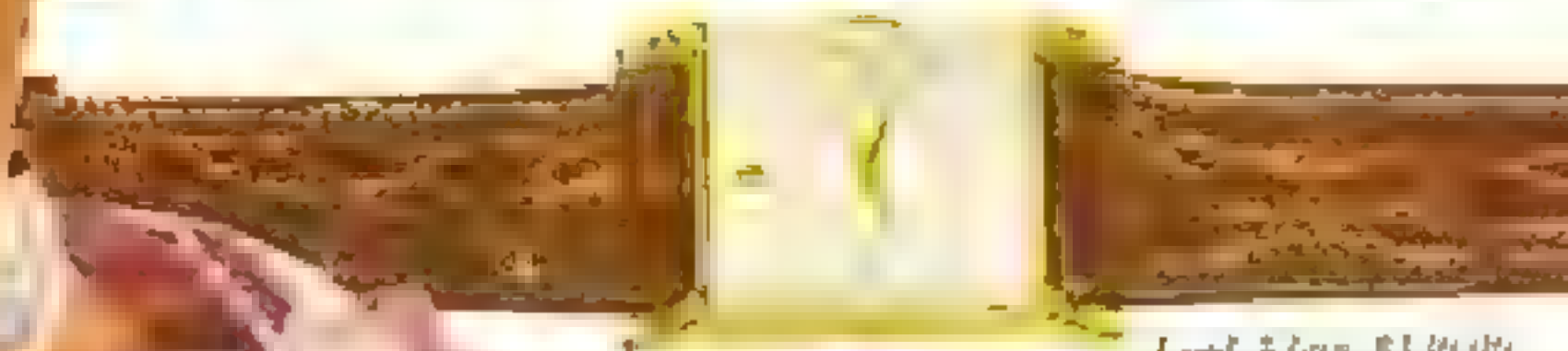
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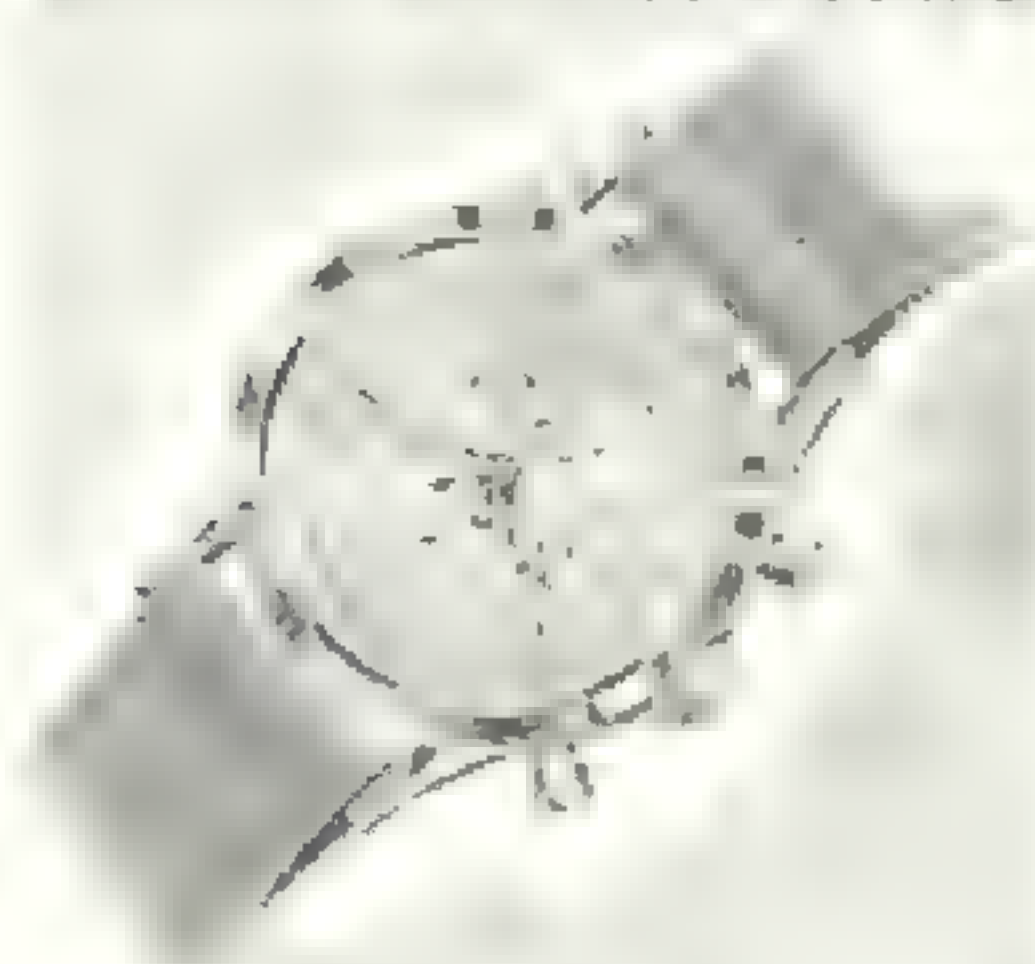
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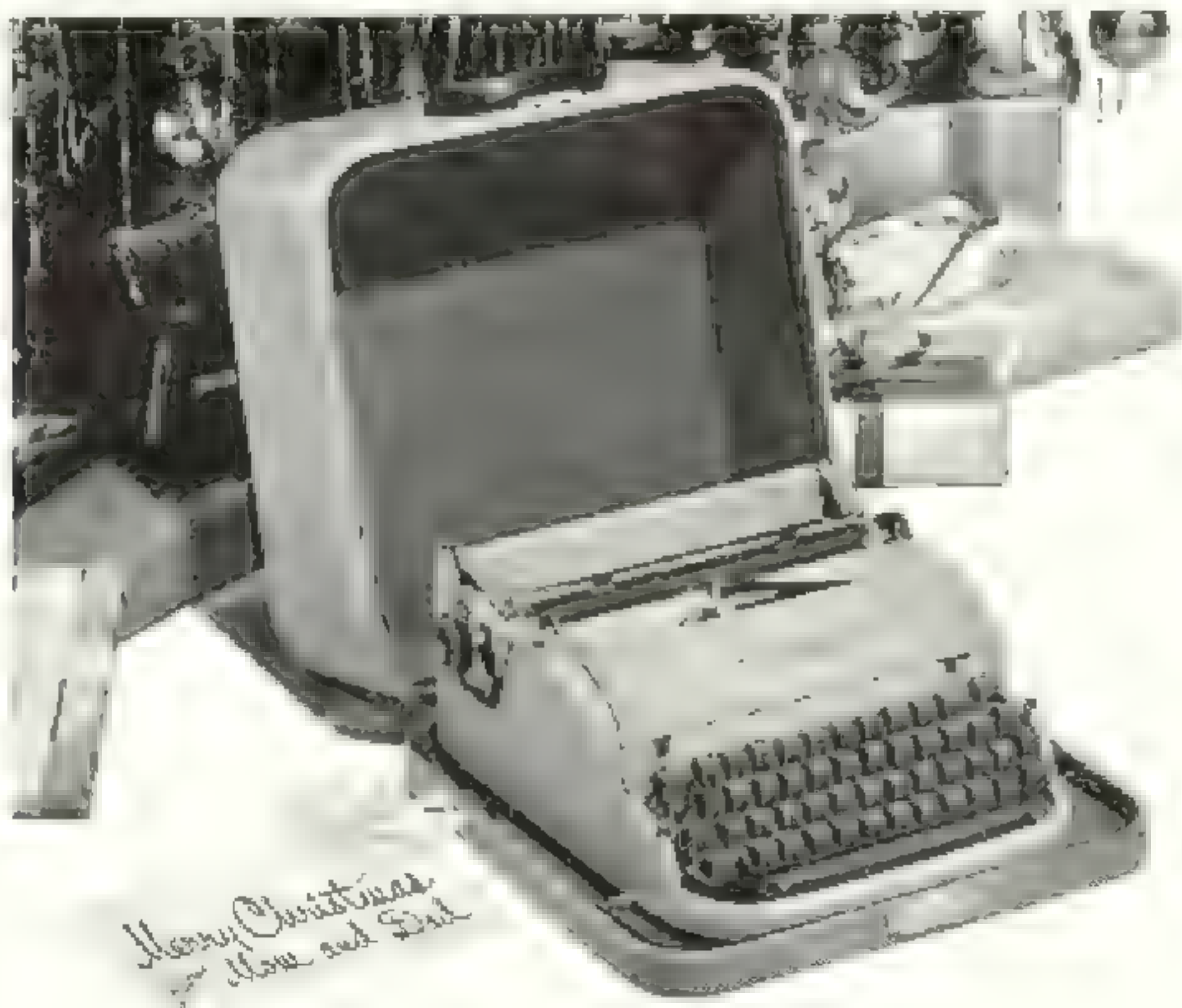
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The little boy who talked to Santa Claus

Direct Line to Toytown—Billy had seen Santa Claus in the stores. But this was the first time he had ever talked to him by telephone from his home.



Billy was four and a half and as full of questions as a quiz program.

But the telephone man didn't mind. He had a little boy of his own and he knew how it was. Patiently he kept explaining every step as he installed the new telephone in Billy's home.

Finally the job was done and he was about to make the usual call to the Central Office to be sure everything was in working order.

But it wasn't the usual call this time. For it happened to be just a little while before Christmas and you know how excited a little boy of four and a half can get about then. And the installer and his co-workers at the Central Office had something specially arranged for just such a situation.

"Would you like to talk to Santa Claus?" he asked. "Right now—over this telephone?"

"Ooooh! Yesss!" said Billy.

So the telephone man got the Central Office and asked Santa Claus to come to the telephone if he wasn't too busy making toys. Said there was a nice little boy named Billy who wanted to talk to him. By now Billy's eyes were big as saucers, but quick as a flash he had the receiver to his ear. Next thing he knew, he heard a voice saying—

"Hello, Billy. This is Santa Claus."

"Where . . . are . . . you?" asked a breathless little voice.

"The North Pole," said Santa.

"Is it cold up there?" Etc. Etc. Etc.

They talked for several minutes and there wasn't a happier lad in all the land than Billy. You can just bet those telephone people were pretty happy about it too.

THIS IS A TRUE STORY of how a telephone installer spread gladness among little boys and girls wherever he found them in the homes he visited during the pre-Christmas period. . . . Nobody asked him and his Santa Claus conspirators in the Central Office to do it. It was their own idea—and just another example of the friendly spirit of telephone people. . . . Wherever they are, and whatever they do, they aim to serve you not only with efficiency but with courtesy and consideration as well.

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